



Boston, MFA  
Egyptian figure of a bear  
New Kingdom, 1550-1070 BC  
Wood, acc no 72.4167



Boston, MFA  
Hemidrachm of Mantinea with she-bear  
(minted in Arcadia, Peloponneosos)  
late Archaic (500-480 BC)  
Acc no 04.907

## Classical images – Roman

## Ursa minor



Los Angeles, Getty Museum  
Marble statue of a bear  
Roman, c. 100-200 AD



Boston, MFA  
bronze statue of a bear (9 mm / 3" tall)  
late Hellenistic (possibly Egypt), 1st C BC  
acc. no 67.627



1779  
BEAR.  
ROME.  
*Castellani.*  
London, British Museum  
Bronze figure of a bear or hound  
Roman, 1-3<sup>rd</sup> C AD  
Acc no 1873.0820.7



Miletus, Greek Theatre, the stage building

Relief depicting Eros hunting

c. 250-225 BC

credit: Flickr (Carole Raddato)

## Classical images – Roman



London, British Museum  
Mould-made pottery lamp  
with running bear  
Found in Pozzuoli, 40-80 AD  
Acc no 1856,1226.498



London, British Museum  
Mould-made pottery lamp with  
standing bear  
Roman, made in Cnidos, 2 C AD  
Acc no 1859,1226.117



London, British Museum  
Mould-made pottery lamp with  
standing bear  
Roman, made by Augendus,  
c. 175-225  
Acc no 1756,0101.632

## Ursa minor



Amsterdam, Allard Pierson  
Museum  
Two-handled jar with relief of  
a bear  
from Djerba, 3rd C AD  
Inv. 12.375



North African redware



Boston, MFA  
Fragment of mould for a bowl with  
youth attacking a bear  
from Arezzo  
Acc no 13.147



Boston, MFA  
Fragment of mould for a bowl with  
youth attacking a bear  
from Arezzo  
Acc no 98.851



Boston, MFA  
Red slipware bowl of Orpheus and the animals  
Late Roman (probl. Tunisia)  
Acc no 1981.658



Los Angeles County Museum of Art / The Getty Villa  
Callisto and Diana with bear hunt in border  
From the Villa Lauro  
Gallo-Roman, 3rd C AD

# Classical images – Roman

Ursa minor



Vatican Museums  
From the Temple of Diana on the Aretine Hill, 1st C AD



Damnatio ad bestias (source?)  
Credit: Wikimedia



Libya, Villa Selene  
Detail from decorative border  
2nd C AD







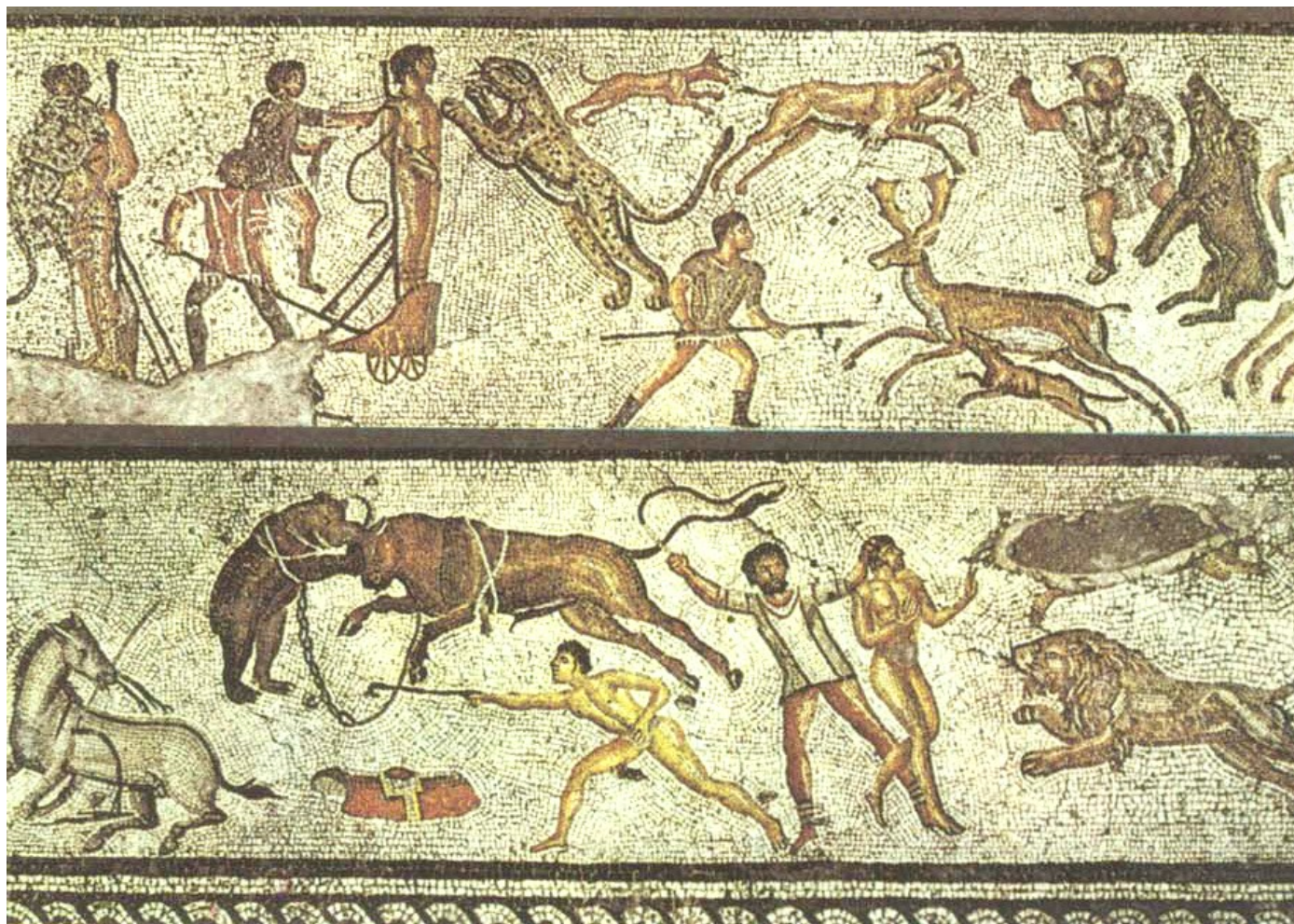
Los Angeles, Getty Museum  
Fragments of floor mosaic  
found between Bacoli and Pozzuoli, Italy  
4th c AD



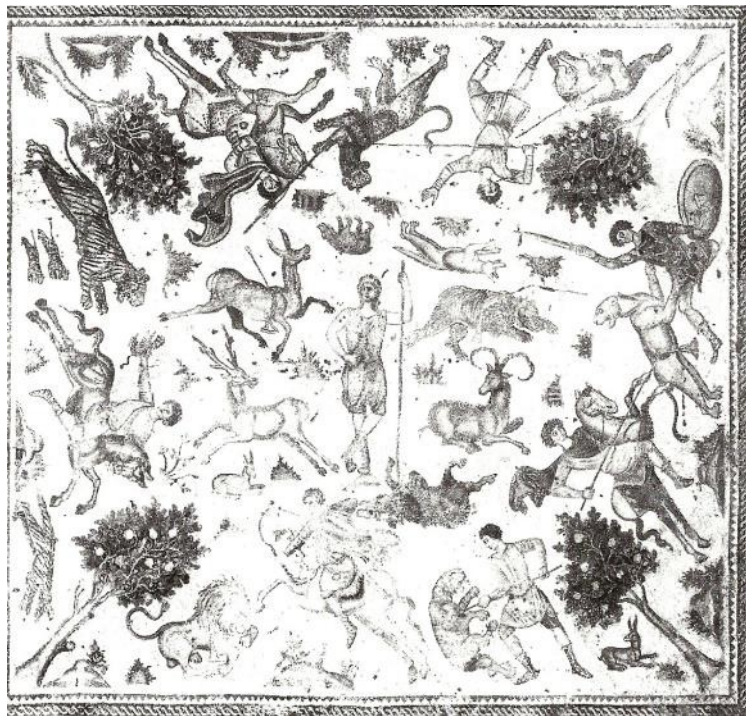
Paris, Musée du Louvre



Fribourg, Switzerland  
Beast hunt in an amphitheatre  
from the Villa at Vallon, ca 3rd C AD  
Cf Ling, pp. 16-18



Leptis Magna, Amphitheatre  
The execution of Garamantes  
wall mosaic from the Villa Dar Buc Ammera, c. 70 AD



Cf. K. Dunbabin, *Mosaic of the Ancient World*, 1999.



Los Angeles, Getty Museum  
Orpheus with animals and 4 seasons  
Gallo-Roman (Saint-Romain-en-Gal )  
c. 150-200 AD



form. Dallas Museum of Art(  
returned to Turkey in 2012)  
Orpheus with animals



Palermo, Museo regionale Antonia Salinas  
Orpheus and the animals  
from Building A, Piazza della Vittoria, c. 200-300 AD  
credit: Wikimedia (Marie-Lan Nguyen)



Bristol Museum of Art (? - displayed there in 2013)  
Floor mosaic from Roman Villa in Newton St Loe,  
late 3rd-early 4th C AD



Cyprus, Paphos, House of Dionysus  
credit: [a-picture-a-day.blogspot.co.uk](http://a-picture-a-day.blogspot.co.uk/2005)  
[/2005](http://2005) (Rui Reino Bapista)



Libya, Tripoli Archaeological Museum  
from Leptis Magna, Orpheus Mosaic Villa



Boston, MFA  
Bronze container (ampulla) in the form of a bear  
Late Imperial/ late antique (c. 4<sup>th</sup> / 5<sup>th</sup> C AD)  
Acc no 62.1203





London, British Museum  
Papyrus fragment with bear  
Egyptian (?), 3-4<sup>th</sup> C AD  
cf. Age of Spirituality, cat 86.

## Classical images – Byzantine

## Ursa minor



Boston, MFA  
Silver ring engraved with a bear (and a lion on the reverse)  
Early Byzantine, 6-7th C AD  
Acc noo 2005. 291



Libya, Qasr Museum  
mosiacs from Olbia (?), 5th C AD

# Classical globes

# Ursa minor



Naples, Farnese Atlas



Paris, Kugel Globe  
n.b. – smaller, in second loop of Draco's tail, long tail

Mainz globe  
n.b. – slightly smaller, in second loop of Draco's tail, long tail, back-to-back

(drawing © Kunzl)

l. = z stemma



Leiden, Univbibl  
Voss lat 4° 79

n.b. – inside second curve of Draco, short tail, facing outwards, foot-to-foot



Boulogne-sur-Mer, Bibl. Mun.  
Ms 188

Same, but slightly larger



Bern, Burgerbibl,  
Ms 88

n.b. – same , but standing on hind feet



vs. planisphere  
in third curve, facing inward, back-to-back



vs. planisphere  
same

II and III. = O stemma (O<sup>1</sup> or v)

II.



Basle, OBU  
Ms AN.IV.18  
n.b. – same size, UMi towards Draco's and slightly larger, butt-to-butt



vs. planisphere

III.



Aberystwyth, NLW  
Ms 735 C  
n.b. – in second curve, both backs towards head of Draco



vs. schema



vs. planisphere  
n.b. – smaller one in second curve



vs. hemisphere  
similar to planisphere



# Germanicus mss

IV. = O stemma (O<sup>2</sup> or μ)



Madrid, Bib nac  
Ms 19 (16)

n.b. – same size, fewer stars on one towards tail = UMi, back-to-back

# Ursa minor

Va. = O stemma (O<sup>2</sup> or μ = Siciliensis)



Cologne, Bib Bodmer  
Cod lat 7

n.b. – slightly smaller one nr. tail



NY, Pierpont Morgan Libr  
Ms M 389

same

Vb.



Vatican, BAV  
Barb lat 76

n.b. -- same

VI.



London BL  
 Egerton 1050  
 n.b. – smaller one towards tail of Draco

VII.



London BL  
 Add 15819  
 n.b. – same size



Naples, Bib naz  
 XIV D 37  
 same

= fragmentum ... repertum in Sicilia

VIIIa.

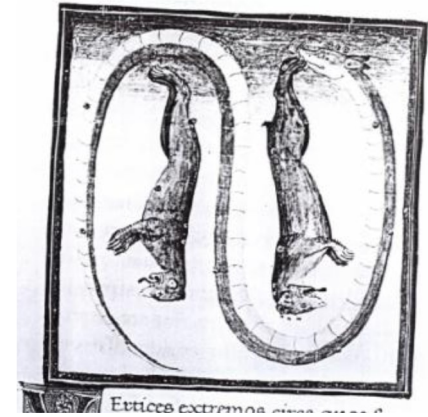


Madrid Bib Nac  
Ms 8282

n.b. – slightly smaller one towards tail  
of Draco

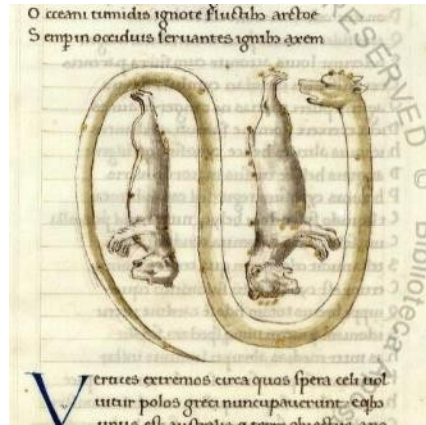


Vatican, BAV  
Barb lat 77



Vienna, Schottenstift  
Ms 51

VIIIb.



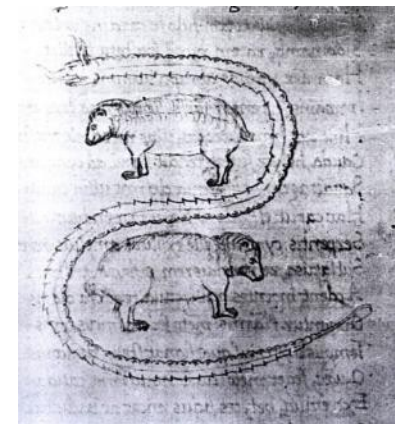
Vatican, BAV  
Urb lat 1358

VIIIc.



Florence, Bibl Laurenziana  
Plut 89 sup 43

IX.



Montpellier  
Ms H 452  
n.b. – pig-like

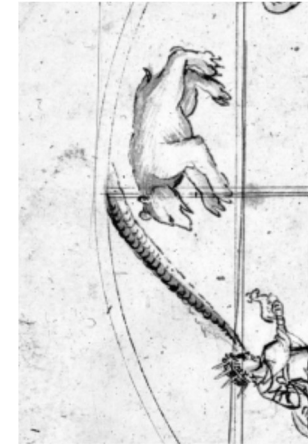




Vatican BAV,  
 Vat grec 1087  
 n.b. – smaller one in first curve of Draco's body, longer tail, back-to-back

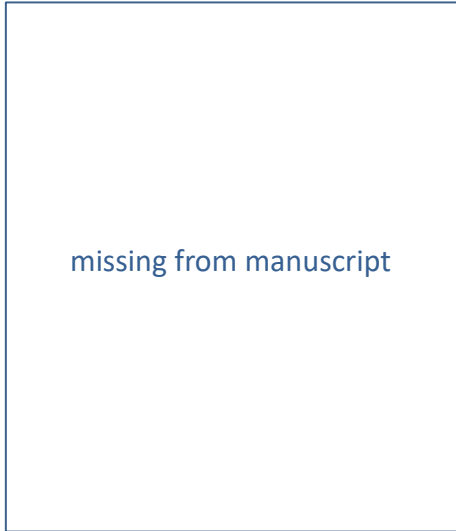


Hemispheres – smaller bear (!) near tail

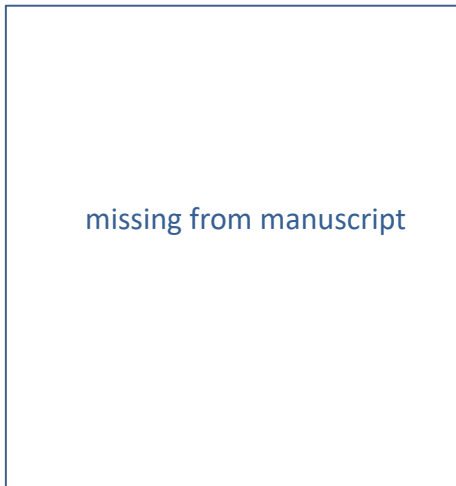


planisphere – smaller bear in second curve of Draco

# Cicero



London, BL  
Harley 647

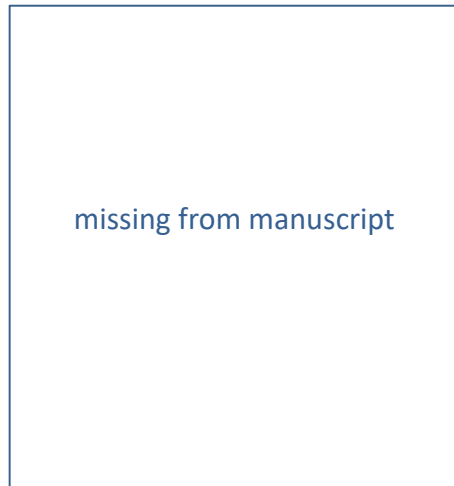


London, BL  
Cotton ms Tib B.V., pars 1

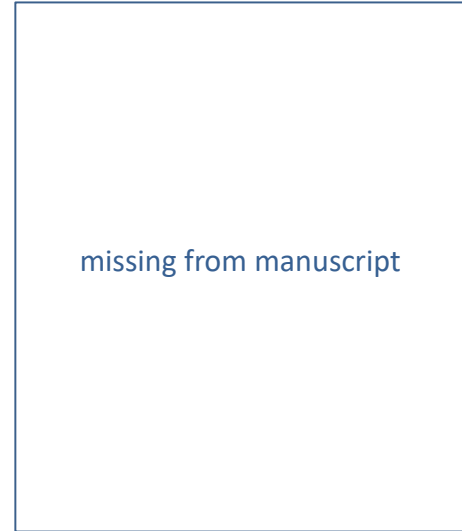
# Ursa minor



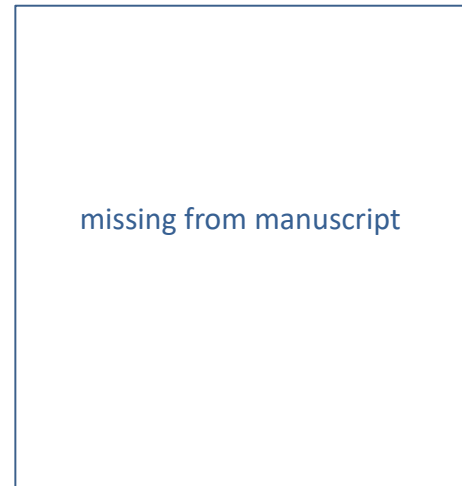
London, BL  
Harley 647 – planisphere bear in third loop  
labelled 'Helix'



London, BL  
Cotton Ms Tib C. 1



London, BL  
Harley 2506



Gottweig,  
Stiftsbibl Ms 7

I.



Dresden, Landesbibl.

Ms D C 183 –

n.b. – slightly smaller bear in second loop standing to left

Paris BN

Lat 12957

n.b. – similar

running to left, shaggy



Dresden – hemispheres

n.b. – UMi near head of Draco

globe on stand  
= UMa or UMi?



Paris – hemispheres

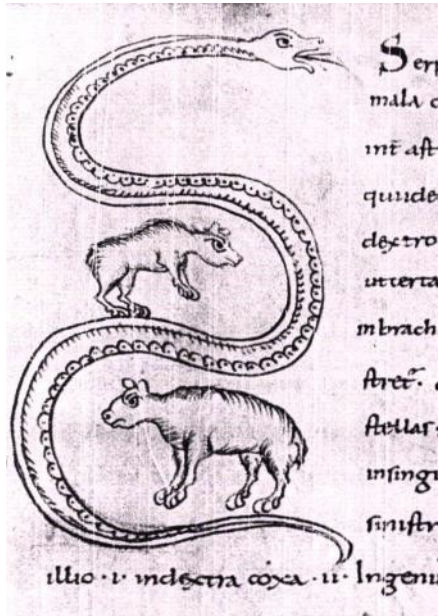
leaping, UMi near  
mid-section of Draco



globe on stand

2 animals = UMa and UMi?

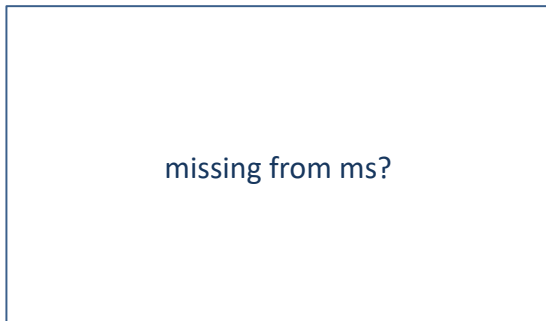
I.



Prague, Univbibl  
Ms IX. C. 6 (1717)

n.b. – smaller bear in second curve

standing to left



Prague – hemispheres

# Revised Aratus Latinus

# Ursa minor

1a.



St Gallen, Stiftsbibl  
Ms 902  
n.b. — same size, tongues out



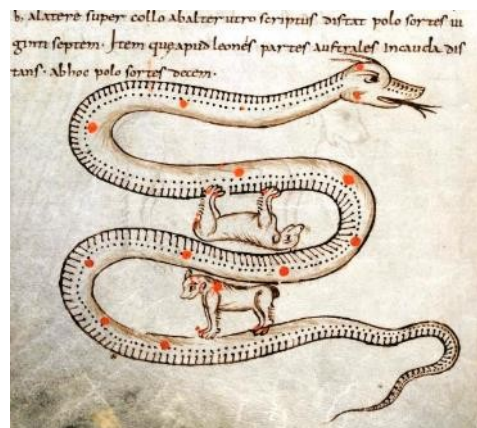
standing to left, tongue out, claws



Hemispheres  
UMi at curl in Draco's body



globe on stand  
2 animals =  
UMa and UMi?



St Gallen, Stiftsbibl  
Ms 250  
same size



standing to left



hemispheres  
UMi at curl in Draco's body



globe on stand  
2 animals =  
UMa and UMi?

Ib.



Gottweig, Stiftsbibl.  
Ms 7 (146)  
n.b. – larger



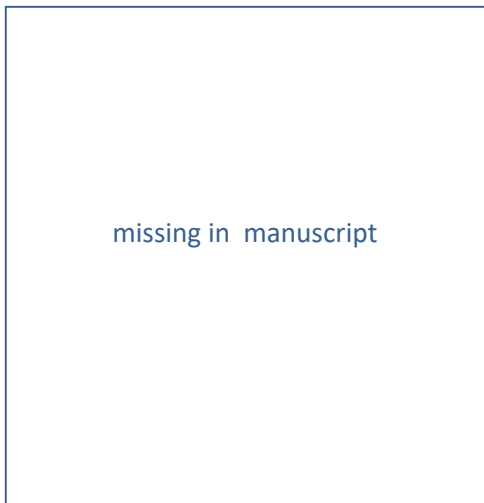
standing to left, tongue out, claws



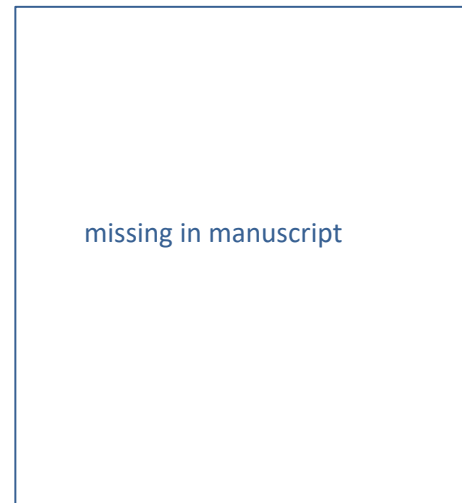
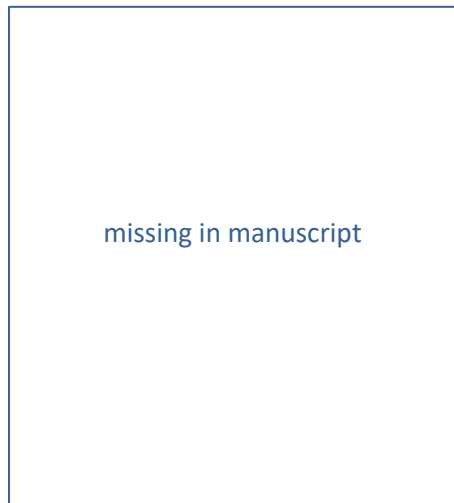
on hemisphere



globe on stand  
rabbit = one of bears?



Siena, Bib com  
Ms L. IV. 25



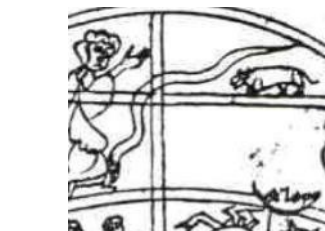
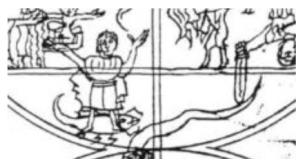
on hemisphere

## I. (distant relative)



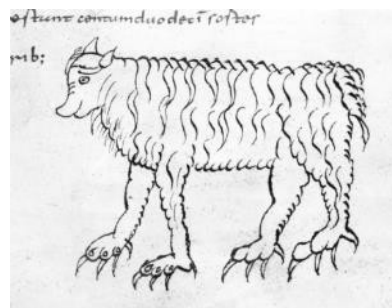
Paris BN  
n.a. 1614

n.b. – bear in curve smaller



hemispheres

n.b. – small bear under tail of Draco (= UMi?)



standing to left, claws



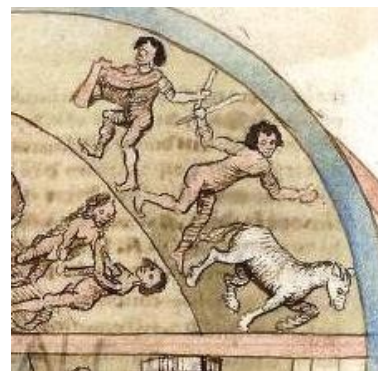
Munich, Staatsbibl.  
Clm 560



hemispheres



I. (distant relative)



Vatican, BAV  
Reg lat 1324

n.b. – bear on tail slightly smaller

Hemispheres  
UMi near Draco's head

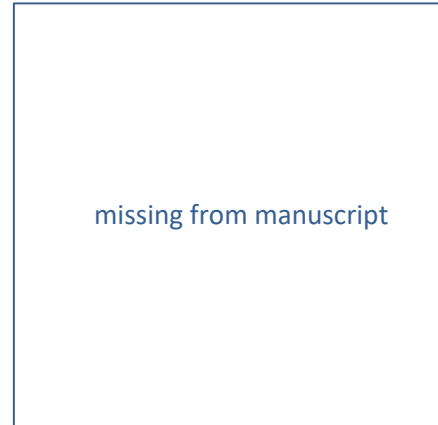
globe on stand  
animal near Auriga as horse



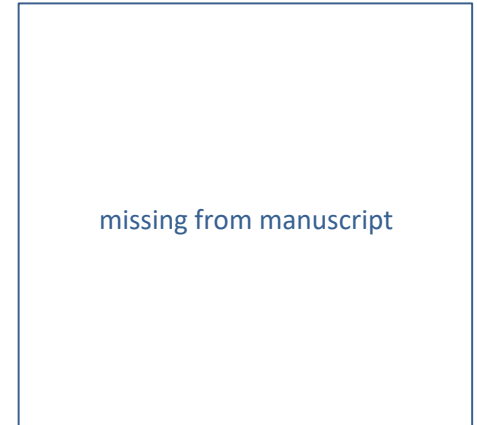
II.



Cologne, Dombibliothek  
Ms 83.11  
n.b. – stands to right, hunched



hemispheres



globe on stand

1.



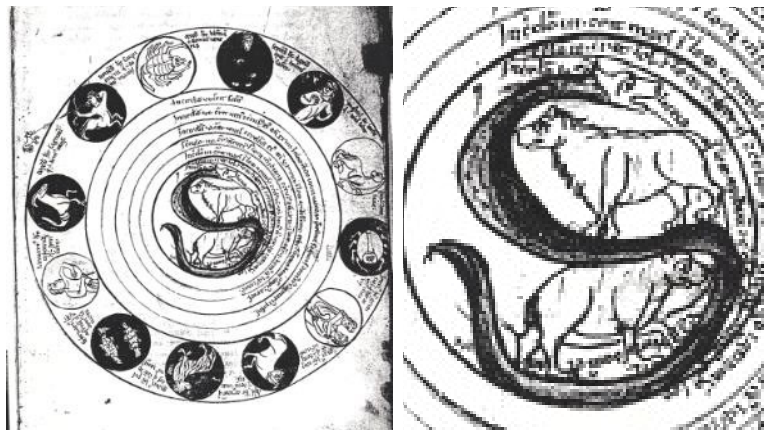
Oxford, Bodleian  
 Laud misc 644  
 n.b. – stands facing right, hunched



Padua, Bibl Antoniana  
 Ms Anton 27  
 same



Venice, Bibl Marciana  
 Ms VIII, 22  
 n.b. – stands facing right, hunched and biting leg

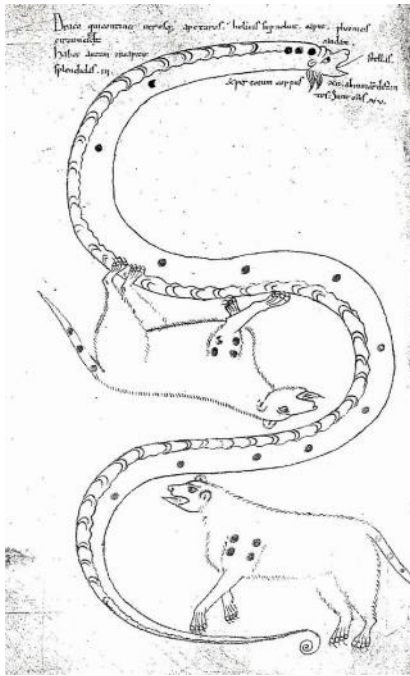


Draco inter arctos as part of zodiac rota



Paris BN  
 lat. 14754  
 same

la.



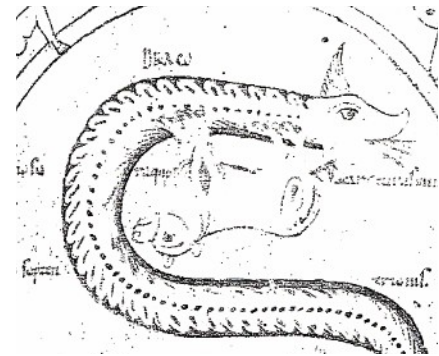
Dijon  
Bib mun, Ms 488  
n.b. – same size



walks to right



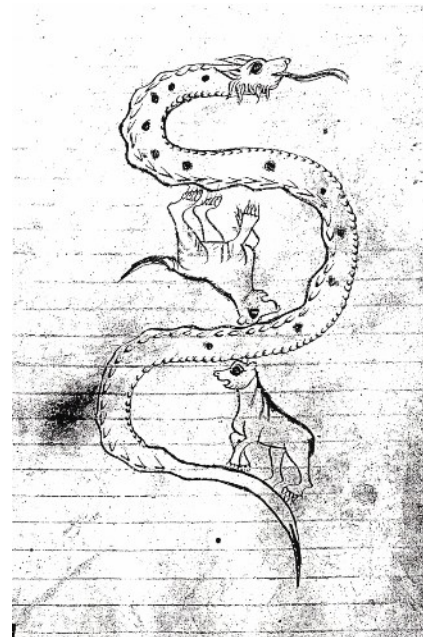
Draco inter arctos as part of zodiac rota



Ila.



Paris, BN  
 Lat 5543  
 n.b. – runs to left, long tail  
 'Fenx arcturus minor'

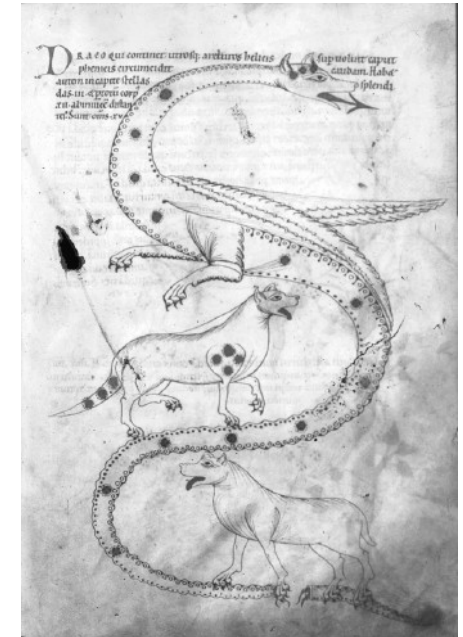


Helice x. quæ pcedant et ducuntur cadentes. et in  
 solus ubi ducunt totam mundum reuolui.



Paris, BN  
 Lat 5239  
 similar, note back fur

lib.



Klosterneuburg,  
Stiftskirche, Ms 685  
n.b. – runs to left, long tail

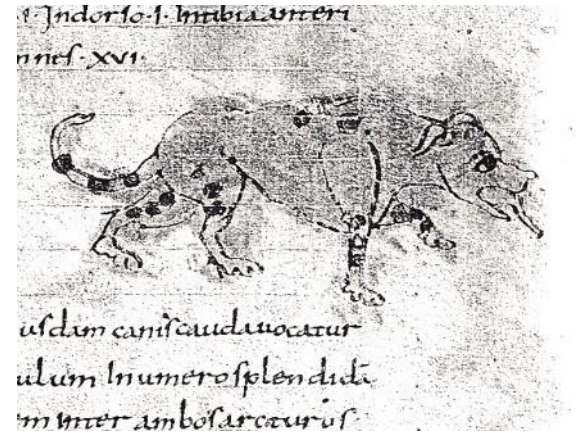
Vatican, BAV  
Vat lat 643

Zwettl, Stiftskirche  
Ms 296  
closer to Klosterneuburg

III.

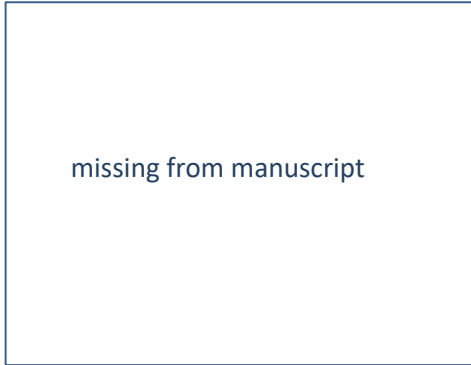


Laon  
 Bibl mun, Ms 422  
 n.b. – walks to right, long tail, claws

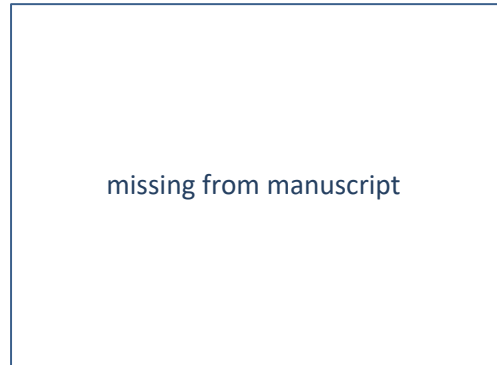


Rouen,  
 Bibl mun, 26  
 similar, but more dog-like with tongue out

Singletons



Amiens  
Bibl mun, Ms 222

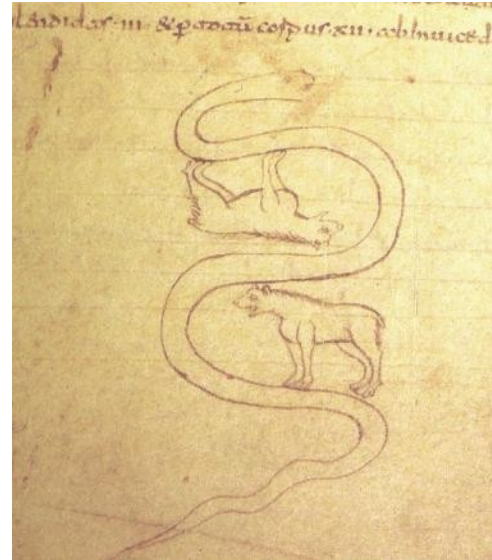


Durham, Cathedral Libr  
Hunter 100

Singletons



Freiburg-im-Bresgau  
Ms 35  
n.b. – stands to right, hunched



Montecassino,  
Badia, Ms 3  
n.b. – stands to left



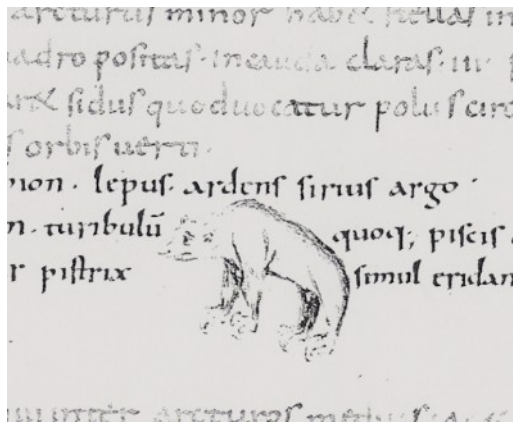
1a.



Berlin, Staatsbibl,  
Ms lat 130 (Phill 1832)  
n.b.— stands to the left



Berlin planisphere



Monza, Bib capit  
Ms F. 9/176 (246)  
stands to the left



Madrid, Bib Nac  
Ms 3307  
similar

Ib.



Vatican BAV,  
 Vat lat 645  
 n.b. – walks to left, shaggy

II.



Munich, Staatsbibl.  
 Ms clm 210  
 n.b. – stands to right, long snout



planisphere

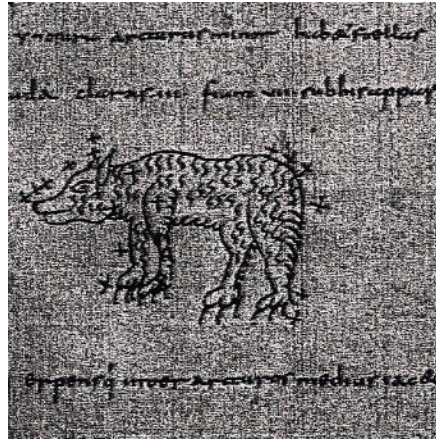


Vienna, ONB  
 Vindob 387  
 same

III.



Austin TX, Harry Ransom,  
Univ of Texas, Ms 29  
n.b. – stands to left



Paris BN  
lat n.a. 1614  
similar



St Petersburg, Nat Libr  
Ms Q v IX, no 2  
same

IV.



Paris BN  
lat 12117  
n.b. – only as draco inter arctos



Vatican BAV,  
Reg lat 309  
same

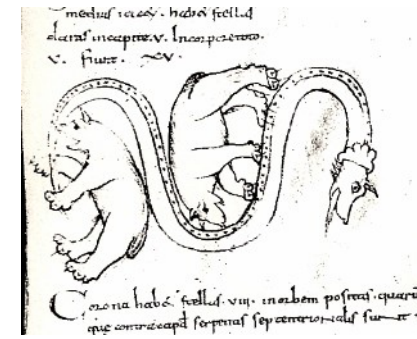
V.



Los Angeles, Getty Mus  
Ludwig XII, 5  
n.b. -- walking to right



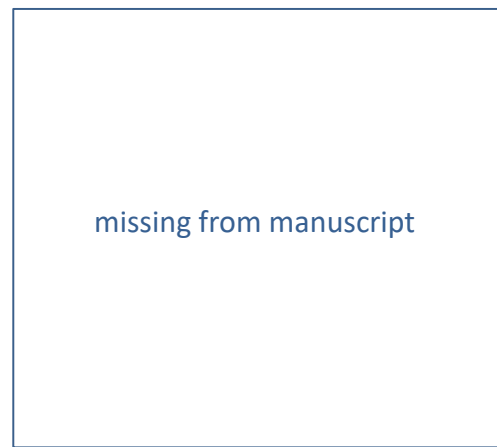
Paris BN,  
lat 8663  
n.b. -- stands to right, hunched



### Singletons



Vienna, ONB  
Vindob 12600  
n.b. -- walks to right, large hump



Reykjavik  
Ms 1812

1a.



S Paul im Lavantthal  
 Ms 16/1 (XXV. 4. 20  
 n.b. – stands to right

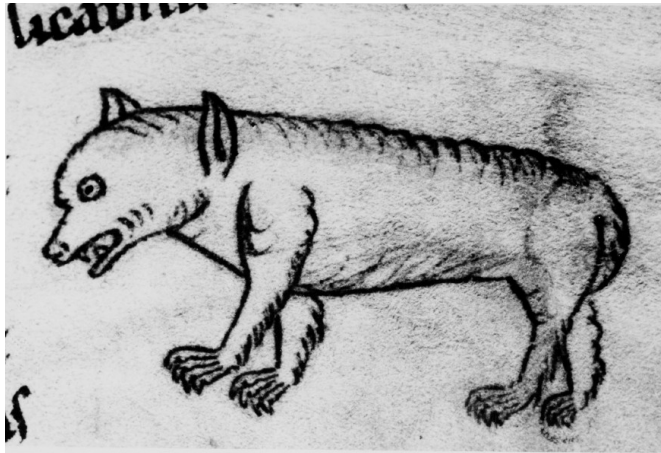


Florence, Bibl Laurenziana  
 Ms Plut 29.30  
 same



Leiden, Univ-bibl  
 Voss 8°18  
 n.b. – standing on water or draco (?)

Ib.



Wolfenbüttel, Herz Aug  
Ms 18. 16. Aug 4°  
n.b. – walking to left



London BL  
Arundel 339  
n.b. – walks to right

Ic. (singleton)



Vienna ONB  
 Vindob 51  
 n.b. – stands to right, hunched

II. (singleton)



Leiden Univ-bibl  
 Voss lat 4° 92  
 n.b. – stands to right, raised front foot

III.



Leiden Univ-bibl  
 Voss lat 8° 15  
 n.b. – leaping to left



Vatican BAV  
 Reg lat 123  
 Leaps to left, short tail



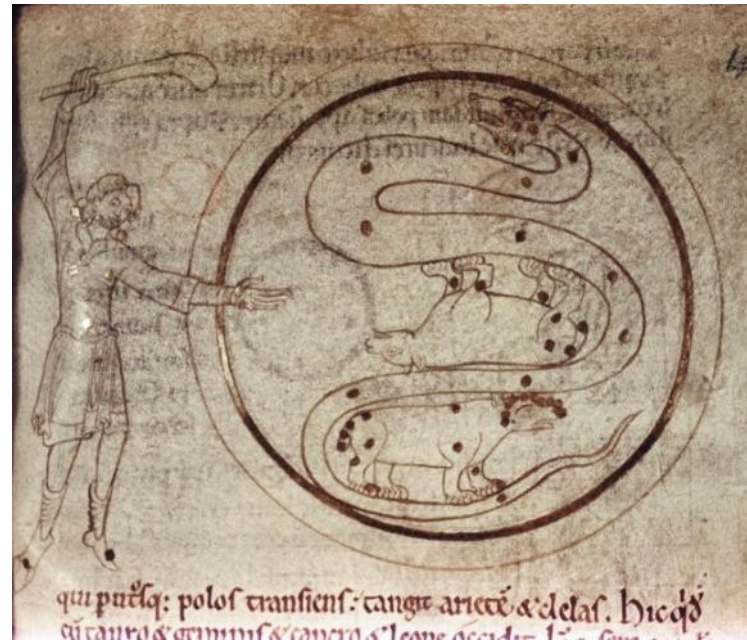
Vat Reg lat 123 –  
 planisphere

IV.



Oxford, Bodleian Libr  
Bodley 614

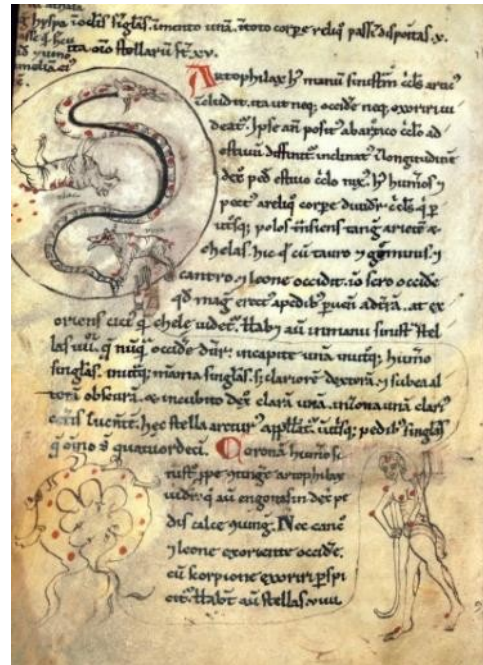
n.b. – only in draco inter arctos, bear towards  
end of Draco's tail slightly smaller



Oxford, Bodleian Libr  
Digby 83 (SC 1684)  
same



## V. (singleton)



Baltimore, Walters Art Gallery

Ms 734

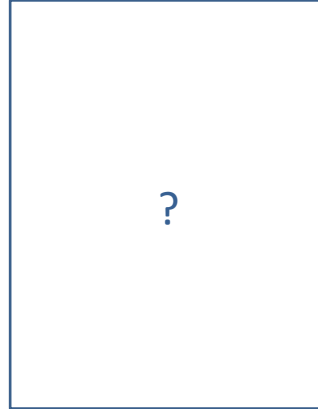
n.b. – only as part of draco inter arctos

VI. (singleton)

VI- related: German Star Books ('secundum Hyginum')



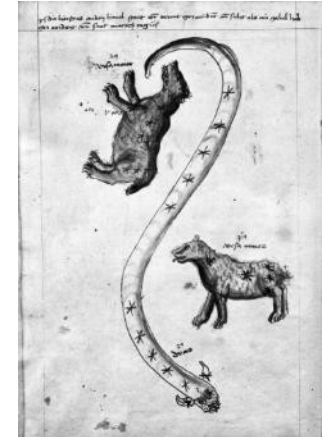
Berlin, Staatsbibl.  
Ms 8° 44 (Rose 962)  
n.b. – only as part of draco inter arctos



Lyon, Bib mun, Pal des  
Arts 45



Lyon, Bib mun  
Ms 172



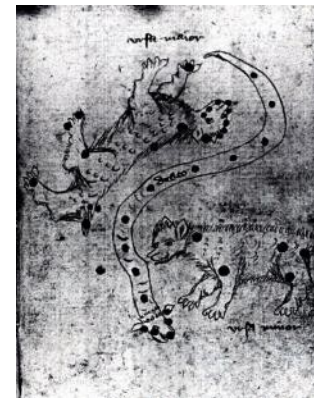
Munich, Staatsbibl  
Germ 595  
angled



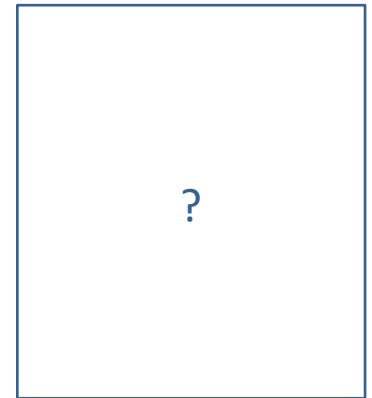
Munich, Staatsbibl  
Clm 59  
back-to-back, in circle



Vatican BAV  
Pal.lat. 1369  
angled



Vatican BAV  
Pal.lat. 1389  
angled



Wolfenbüttel Herz Aug  
Guelf 81 24 Aug 1

## VII. (singleton)



London BL,  
Roy Ms 13. A. XI

n.b. – only as draco inter arctos

## VIII. (singleton)



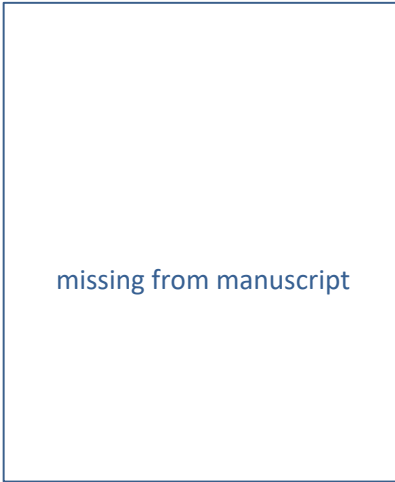
Munich, Staatsbibl.  
Cim 10270

n.b. – only as draco inter arctos, 'Cynosura' near Draco's head

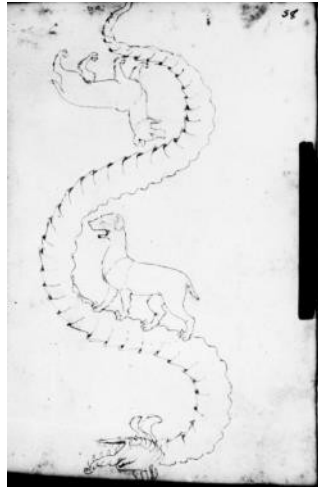
# Hyginus

## IXa.

# Ursa minor

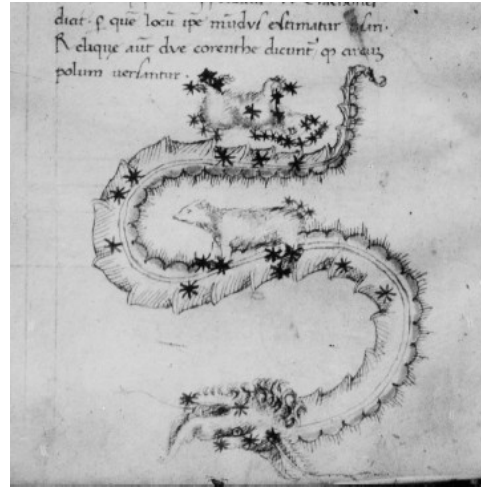


Cambridge, Fitzwilliam Mus  
Ms 260



Florence, BN  
Magl XI. 141

n.b. -- only as draco inter arctos



Milan, Bibl. Ambrosiana  
T. 47 sup



Oxford, Bodleian Libr  
Can. class lat 179



Siena, Bib com  
Ms L. VI. 25



Vatican, BAV  
Vat lat 3109



Vatican, BAV  
Vat lat 3109



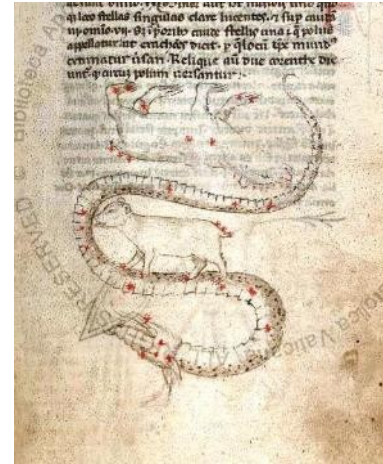
Verona, Bibl capitolare  
Ms CCLXI

# Hyginus

# Ursa minor

IXb.

IXc.



Oxford, Bodleian Library  
Can misc 46

Milan, Bibl Trivulziana  
N. 690 (E 83)

Vatican, BAV  
Vat lat 3110

Florence, BNC  
Magl XI. 114,1

n.b. — only as draco inter arctos

IXd. (distant singleton)



Florence, Bibl Laurenziana  
Ashburnam 1148

n.b. – only as draco inter arctos

IXe.



Pavia, Bibl Univ  
Aldini 490

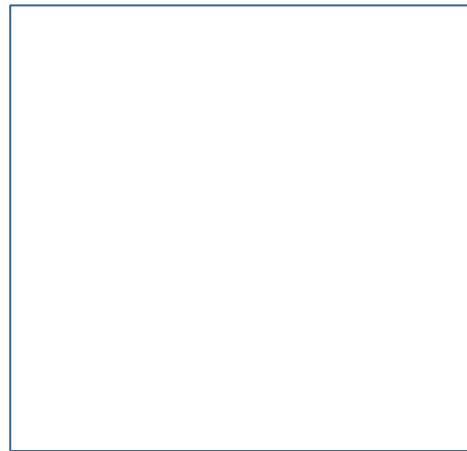


Vatican., BAV  
Urb lat 1358

IXf.



New York, Public Library  
Spencer Ms 28



Freiberg, Andreas-Möller-Bibl.  
Cl XI 4o 9

IXg.



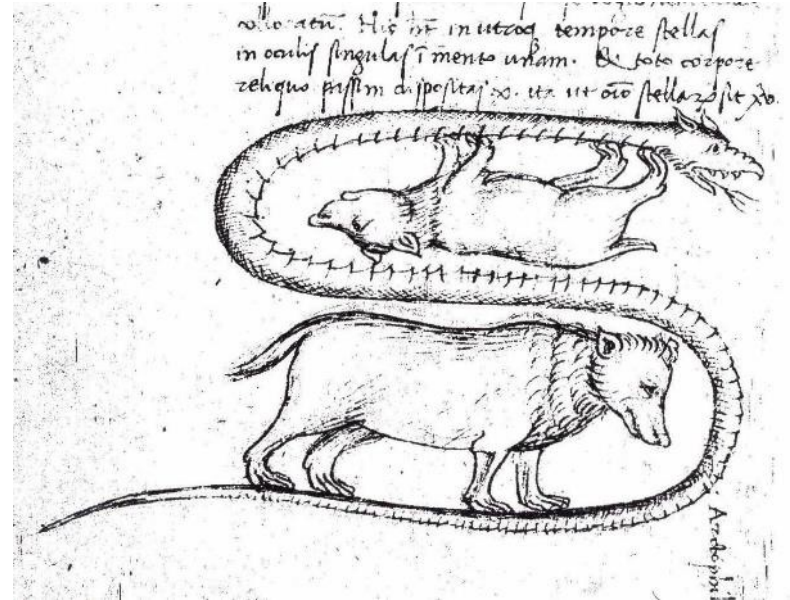
Florence, Bib Naz  
Plut 89, sup 43

X. (singleton)



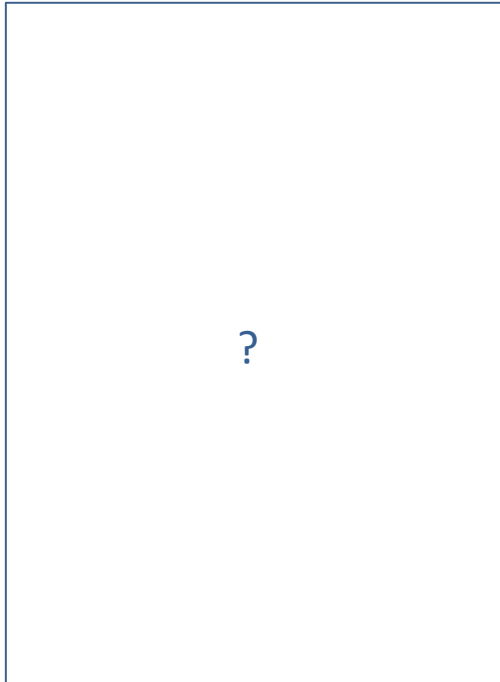
Vatican, BAV  
Chigi H. IV. 20

XI. (singleton)

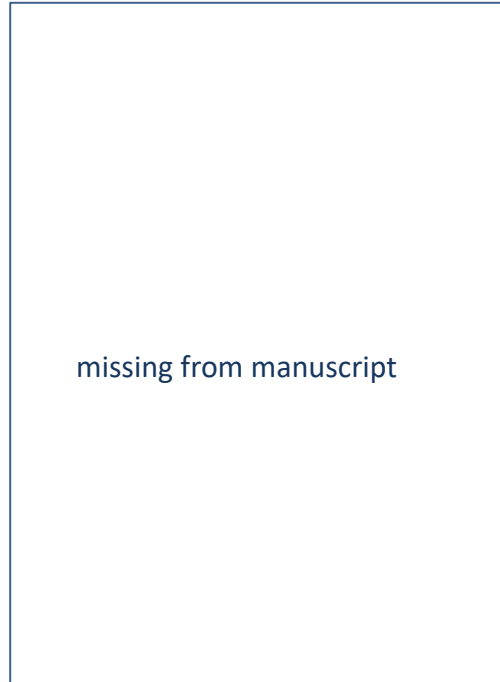


Cortona, Lib del Comune  
Ms 184 (256)

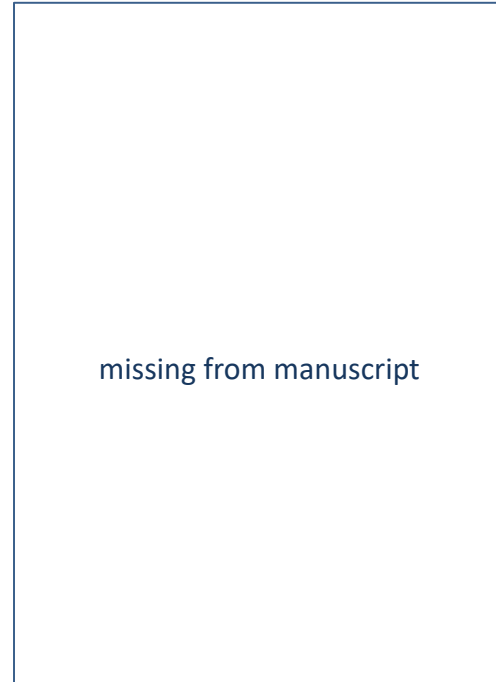
n.b. – only as draco inter arctos, smaller one near Draco's head



Cambrai, Bibl Mun.  
Ms 933 (832)



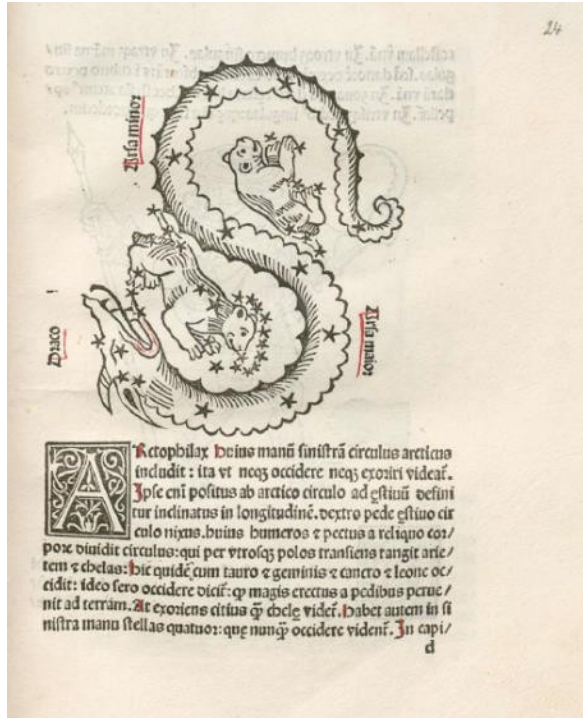
Cambridge, Trinity College  
Ms R 15 32



Leiden, Univ.-bibl.  
Gronovius 21



Venice: Ratdolt, 1482

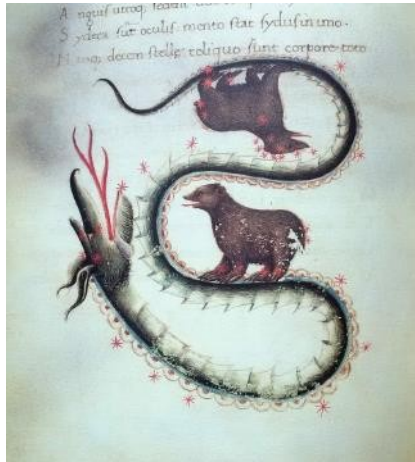


cf Michael Scot  
n.b. — only as draco inter arctos,  
smaller one near tail



Vienna ÖNB  
Vindob 3111  
same

1a.



Rimini, Cassa di Risparmio  
(London Sotheby's sale 1992)  
n.b. – only as draco inter arctos

1b.

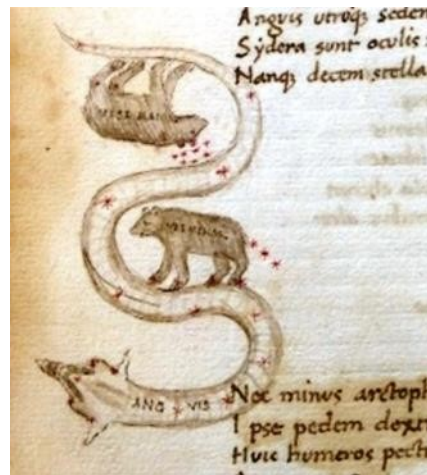


Cambridge, CUL  
Dd IV 64  
same

11a.



Oxford, Bodleian Libr  
Bodley 646

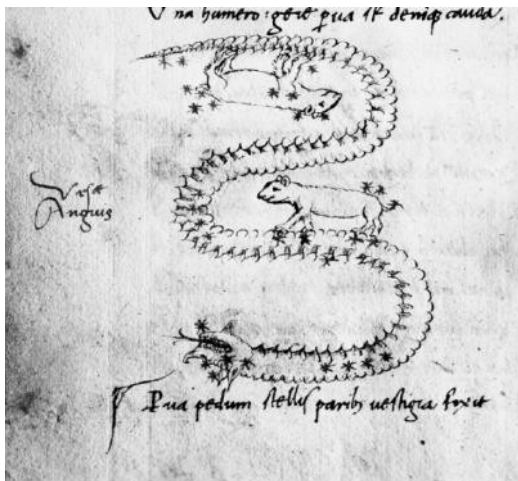


Parma, Bib Palatina,  
Parm 1008  
same



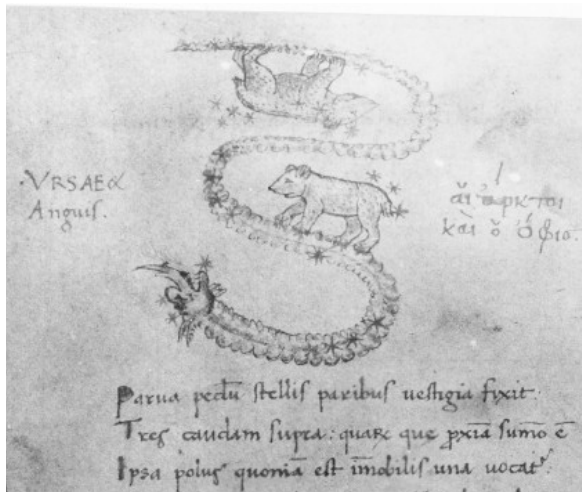
Venice, Bibl Marciana  
XII, 194 (4148)

IIb.



Parma, Bibl Palatina  
Parm 27

n.b. — only as draco inter arctos



Rome Bibl Casanatense  
Ms 4059

same



Munich, BSB  
Clm 15743

same

III.



Bologna, Bibl Com  
Ms 173  
n.b. – only as draco inter arctos

IV.



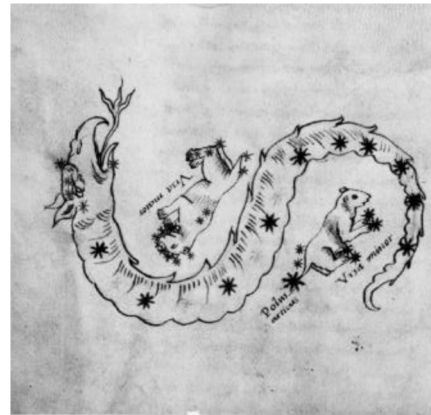
London, Wellcome Coll

V.

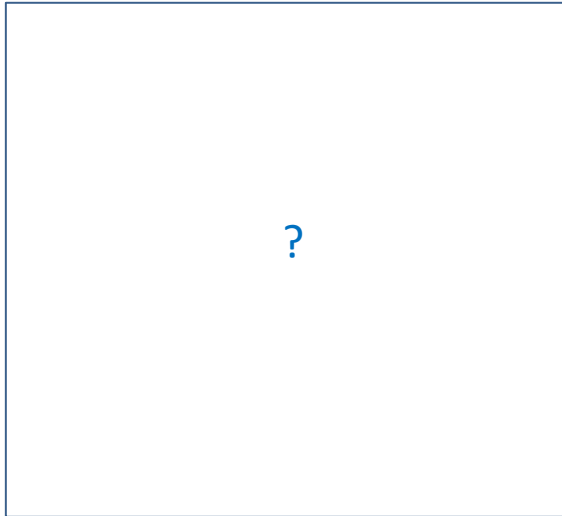


Ravenna, Bib Classense  
Ms 120

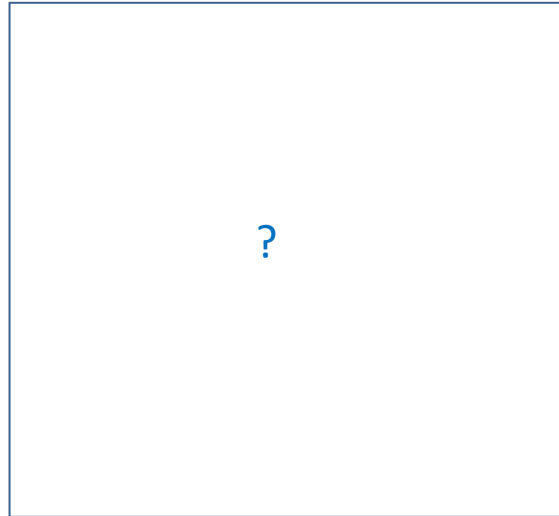
VI.



Florence, Bibl Marucelliana  
Ms C. CCLI  
cf. Ratdolt/ Michael Scot



Krakow,  
Rps BJ 3706



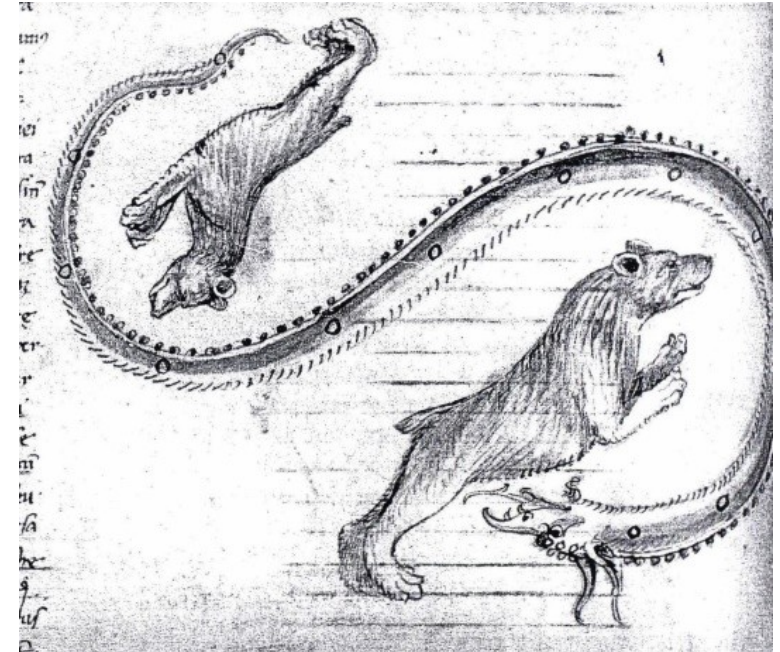
Padua, Bibl. Universitaria  
Cod 983

N Italian Group – Ia.



Munich, Staatsbibl  
Clm 10268

n.b. – only as draco inter arctos, smaller bear at tail



Oxford, Bodleian Libr  
Bodley Ms 266

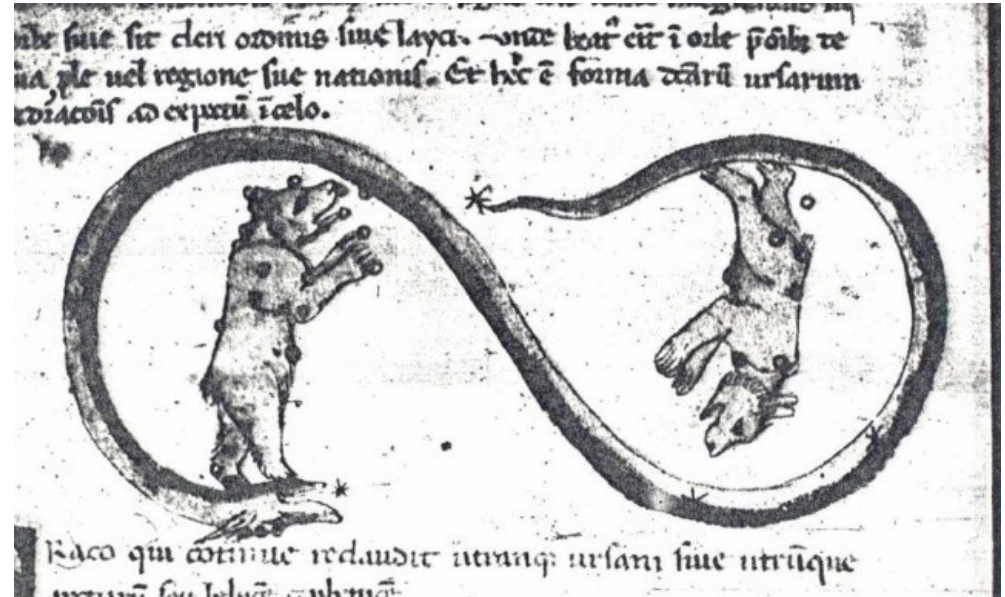
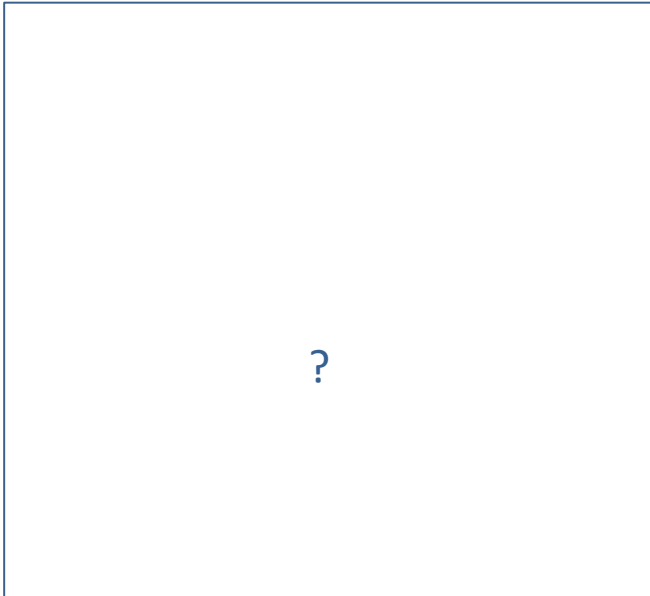
same

[1] In unoquoque est signum certa quantitate stellarum et utrumque dicitur Arcturus, tamen unum est maius altero. At sicut Greci nominant dicta signa Arctores, ita nos Latini nominamus eadem signa Ursas seu Plaustra.

[2] Ergo Ursarum una magna est et altera parva, et sibi sunt opposite, ut caput unius ad caudam alterius continuo persistens. Ursa quidem Minor est in parte septentrionis et minor est in parte meridiei.

[6] RT tantum valet Arcton dicere, quantum Arctofilax seu Currum sive Ursa Minor. Item quandoque ... nominatur Minor Fenix, ut reperitur in multis autoribus (ed. Ackermann 2009, p. 168 - 70).

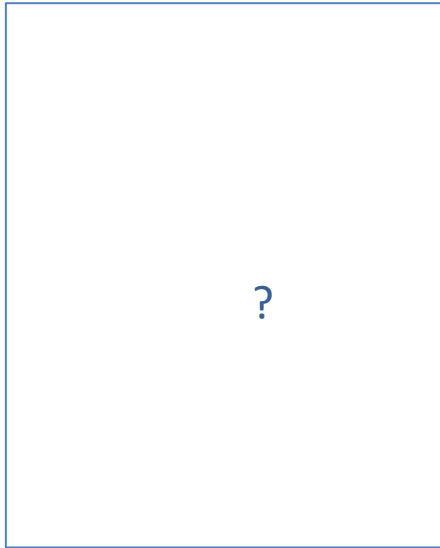
N Italian Group – Ib.



Vatican, BAV  
Vat lat 4087 A

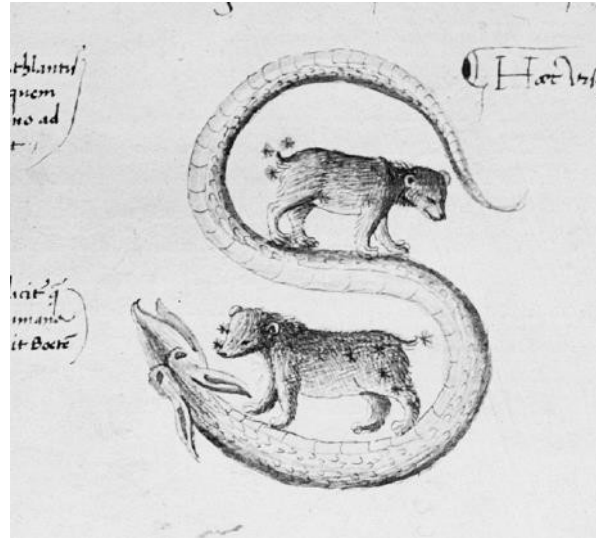
St Petersburg, Nat Libr  
Ms lat F V IX, no. 1  
n.b. – only as draco inter arctos

N Italian Group – Ic.



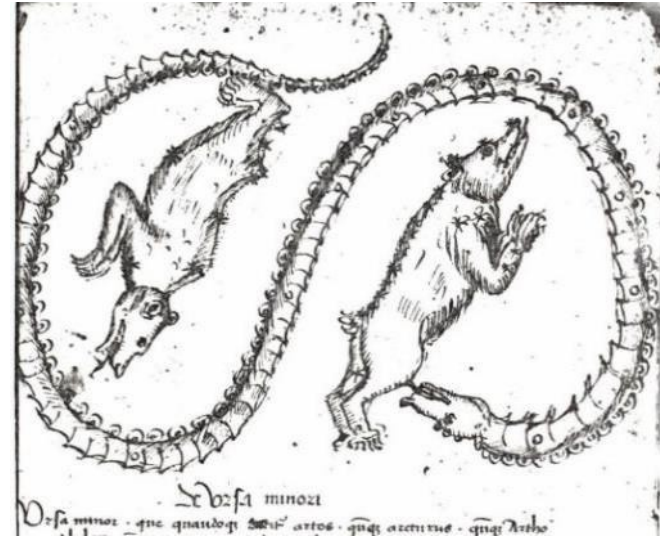
Warsaw, BN, B  
Baw 46

N Italian Group – Id.



Vienna, ONB  
Vindob 3394  
n.b. – only as draco inter arctos, smaller bear  
at tail

N Italian Group – Ie.



Padua, Bibl Seminario  
Cod. 48  
same

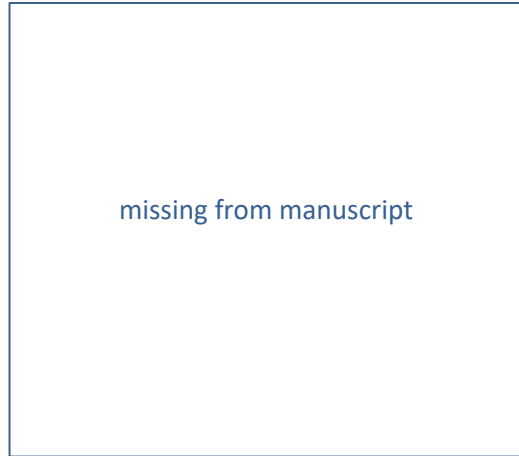


Venetian Group – IIa.



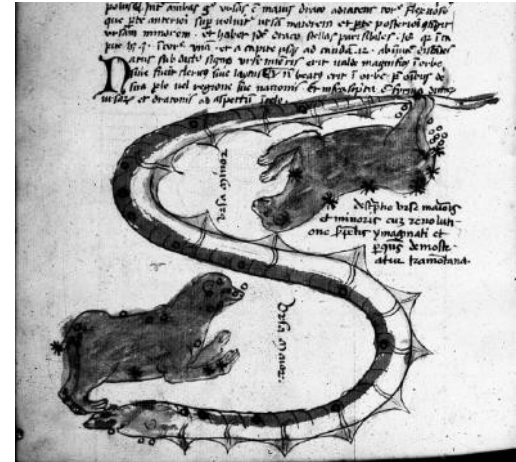
London BL  
Add 41600

n.b. -- only as draco inter arctos, smaller bear with long tail at tail of Draco



London, Wellcome Coll

Venetian Group – IIb.



Milan, Ambrosiana  
Ms I 90 sup

Bohemian Group – IIIa.



Vienna, ONB  
Vindob 2352

n.b. – only as draco inter arctos, same size, UMi at tail of  
Draco



Vienna, ONB  
Vindob 2378

same, but smaller bear at tail

Michael Scot

Ursa minor

Bohemian – IIIa.



Prague NK,  
Ms III. C. 2

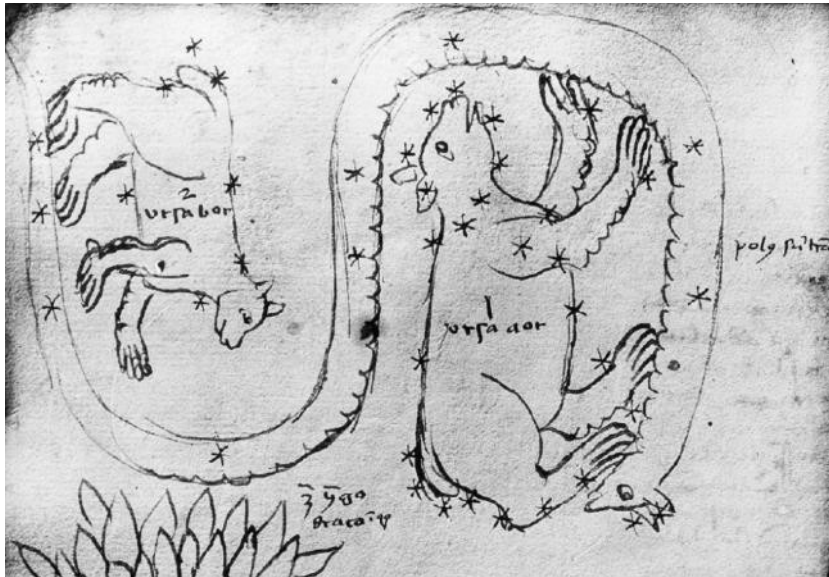
Bohemian – IIIb.



Paris BN  
lat 7408

n.b. – smaller bear at tail of Draco

Bohemian – IIIc.



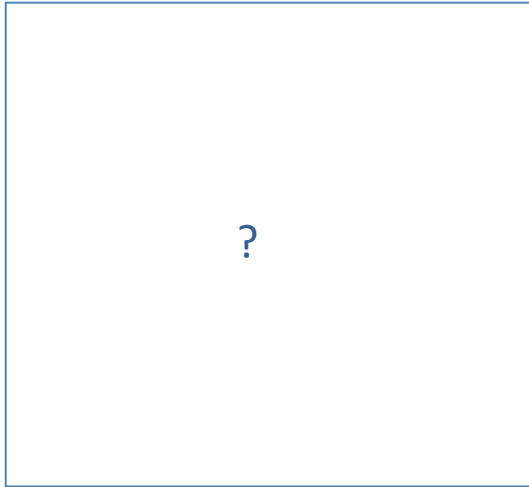
Vienna, ONB  
Vindob 5442

n.b. – only as draco inter arctos, smaller bear at tail of Draco

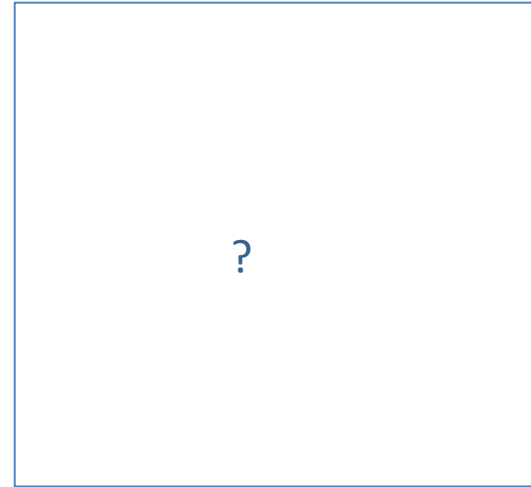
Bohemian – III d.



Cambridge, MA  
Harvard, Houghton  
Libr., Typ 43



Edinburgh, Royal Observatory  
Ms Cr 3. 23

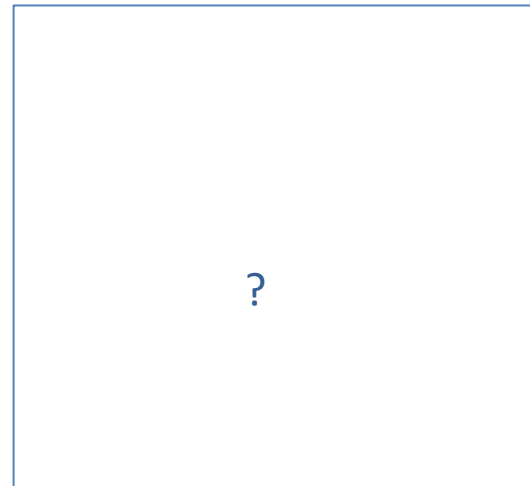


Florence, BNC  
Magl. XXII, 22



Klosterneuburg, Augustiner Ch-Stift,  
Ms CCI 125

n.b. – only as draco inter arctos, smaller bear at second curve, long tail



Krakow, Bibl Jagiellonska  
Rps 573



Prague, Narodni Knihova  
Ms XXXVI A 3

n.b. – only as draco inter arctos, smaller bear at end of  
Draco's tail



Seville, Bibl Columbina  
Ms. 7.7.1

n.b. – stands to right, tongue out

Michael Scot  
German mss – IVa.

Ursa minor



Darmstadt, Hess Hochschulbibl.  
Ms 266  
n.b. – only as draco inter arctos



Berlin, Staatsbibl  
Ms germ fol 244  
smaller bear near head of Draco



Salzburg, Studienbibl  
2 G 8/13  
smaller bear at tail of Draco



Vatican, BAV  
Pal lat 1370

German mss – IVa.



Paris, BN  
Allem 106  
smaller bear at tail of Draco



German mss – IVb.

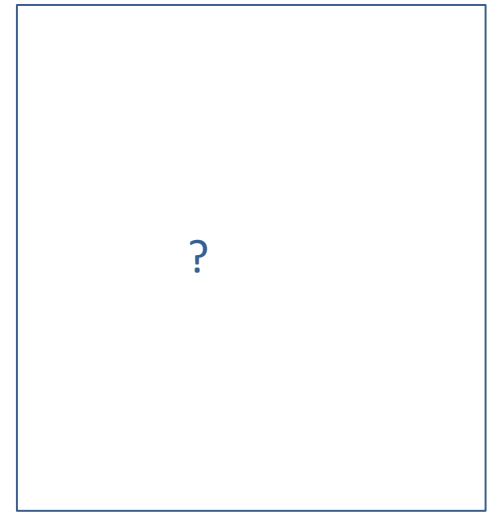


Tubingen Univ-bibl.  
Ms d 2

n.b. – smaller bear at tail of draco



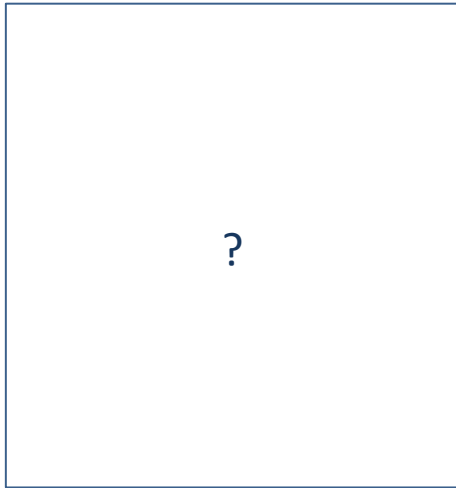
smaller bear in paratellonta rota near  
Pole Star



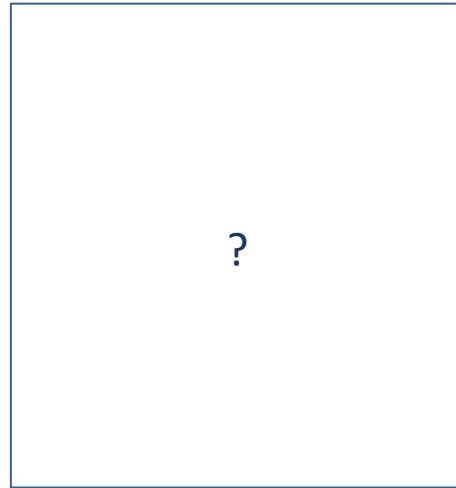
Wolfenbüttel, Herz Aug Bibl  
Ms Guelph 29 14 Aug 4°



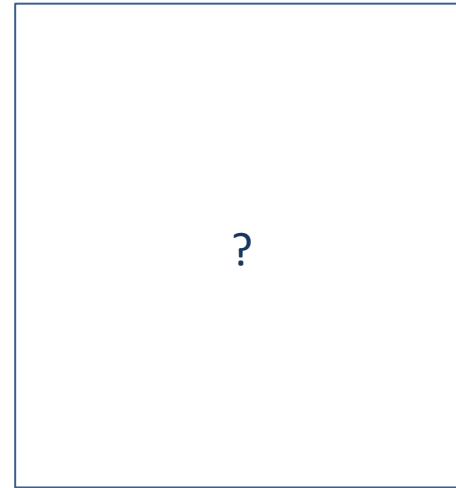
UMa and UMi as children of Luna



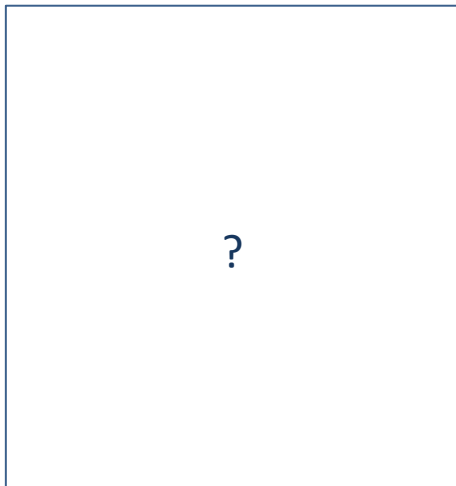
Coburg, Bayerisches Landesbibl.  
Ms 5



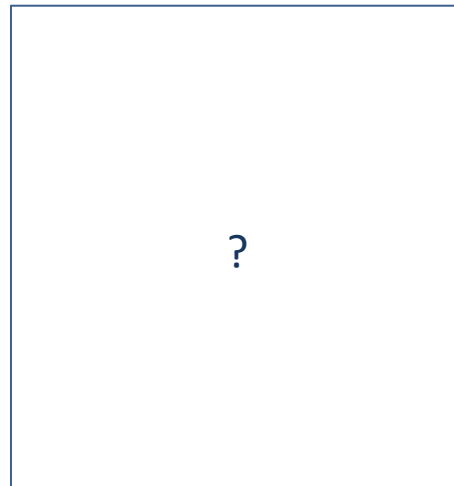
Edinburgh, Royal Observatory Libr.  
Ms Cr 4 6



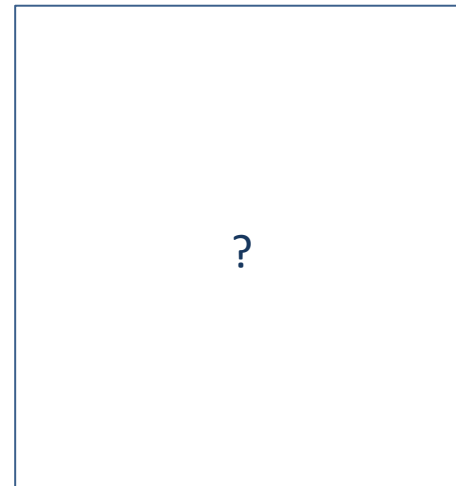
Freiburg, Univ-bibl.  
Ms 458



Heidelberg Univ-bibl.  
Pal germ 832



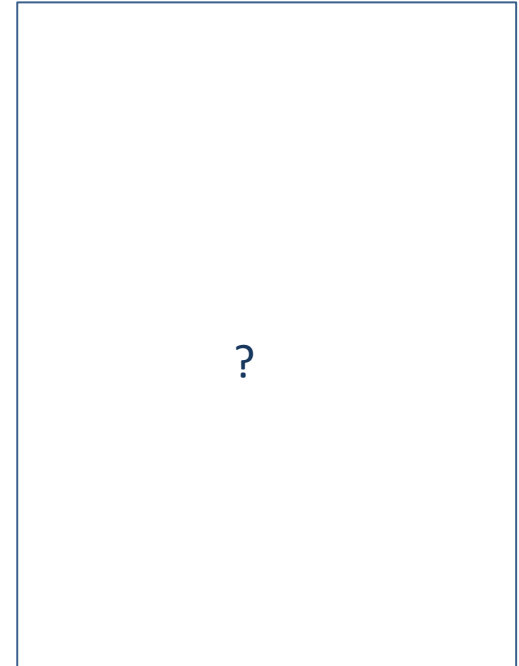
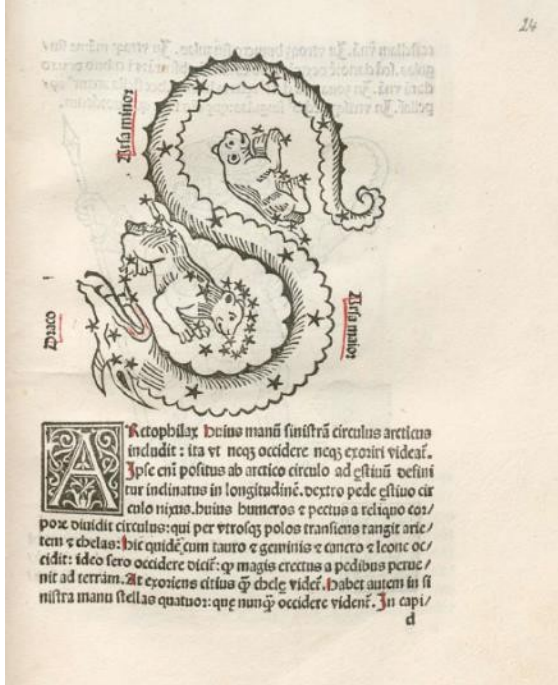
Karlsruhe, Badische Landesbibl.  
Ms K 2790



Nürnberg, Germanisches Nationalmus.  
Ms 7082

Venice: Ratdolt, 1482

Bartolommeo da Parma



Cambridge, Emmanuel College  
Ms 70

Metz, Bibl mun  
Ms 287

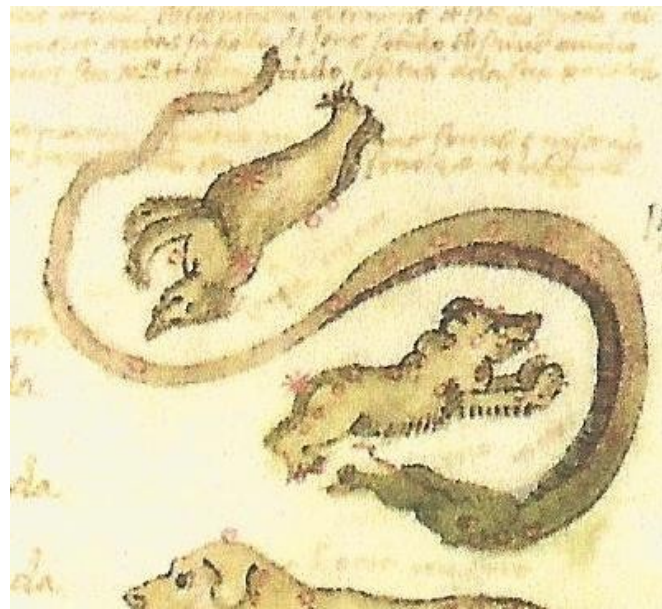
n.b. – only as draco inter arctos , UMi at tail of Draco

Fazio degli Uberti



Paris, BN,  
Ital 81

n.b. – only as draco inter arctos, bear at Draco's tail is labelled 'Ursa minor'



Modena, Bibl Estense  
Ital 483 (α. P. 47)

n.b. – only as draco inter arctos

Alfonsine Tables (John Killingworth update)



London, BL

Arundel Ms 66

n.b. – stands to right, wears a collar

Stellacio urse minoris et dicitur cinosura

Ludovicus de Angulo



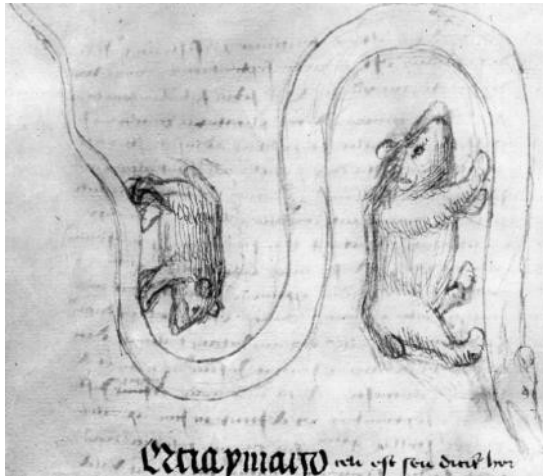
St Gallen, Vadianische Libr  
 Ms 427  
 n.b. — only as draco inter arctos



Florence, Bibl. Riccardiana  
 Ms 3011  
 n.b. — smaller bear at end of Draco's tail



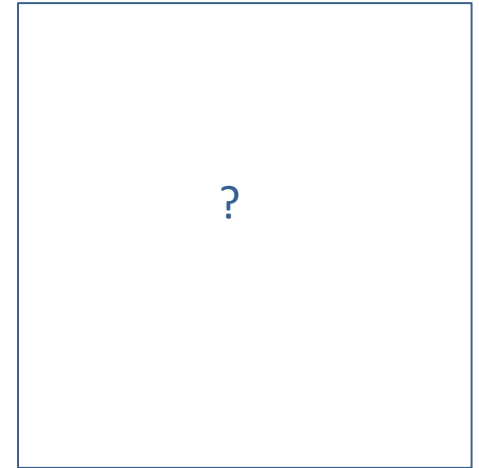
Madrid, BN  
 Ms 9267  
 same (see label)



Paris BN  
 Lat 6561  
 n.b. – only as draco inter arctos , smaller bear at end of Draco's tail



Paris BN  
 Fr 612  
 n.b. – smaller bear at second curve of Draco's



Paris BN  
 Lat 7344



Hague  
Ms 72.A  
n.b. — only as draco inter arctos;  
UMI near Draco's tail (label)



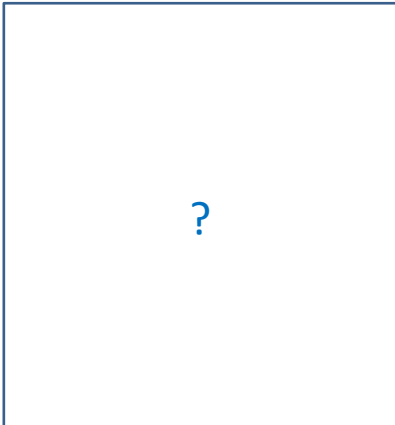
Hague  
Ms 128 C  
same



Paris, BN  
Lat 8865  
same



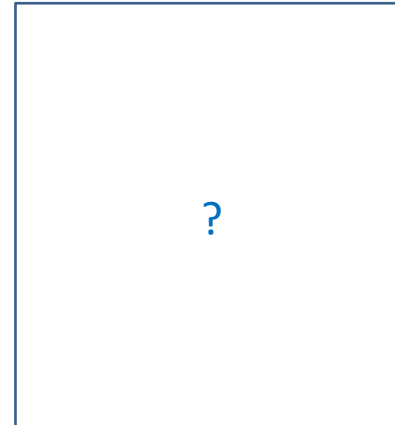
Chantilly, Petit Château  
Ms 724 (1596)  
same



Leiden, Univ-bibl  
Ms 1° 31



Ghent  
Ms 92  
same



Paris, BN  
Lat 9675



Wolfenbüttel, WDB,  
Ms Gud lat 1  
same





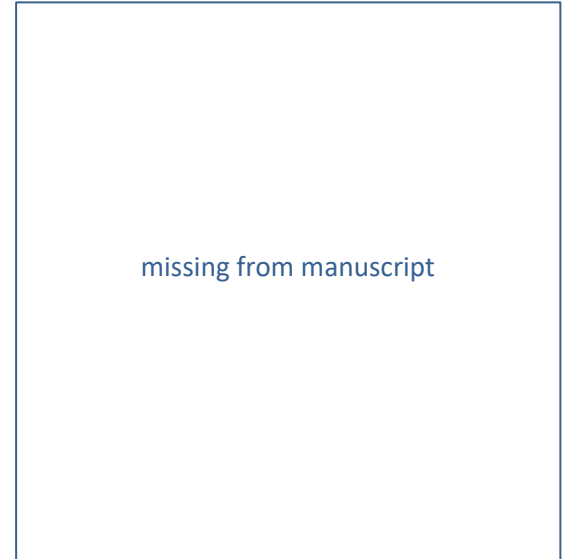
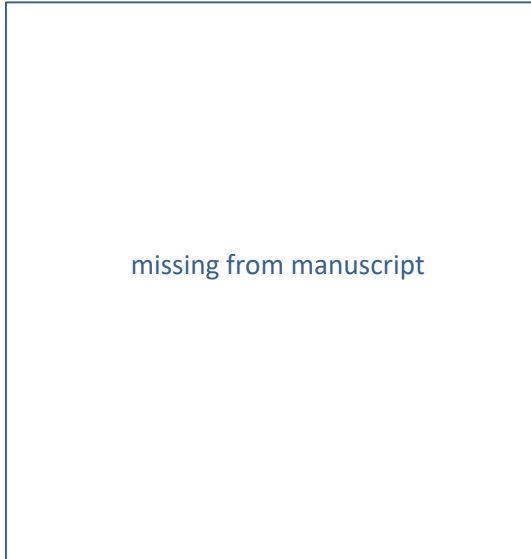
Vatican BAV  
Val Lat 3121

n.b. – only as draco inter arctos, smaller bear closer to end of Draco's tail



Madrid, BN  
Ms 1983

same, upper bear slightly smaller



Fermo, Bibl. Com.  
Ms 4

Florence, Bibl. Laurenziana  
Aedil 170

London, Lambeth Palace  
Ms 35



Florence, Bibl Laurenziana  
Plut 40 53

n.b. – only as draco inter arctos, bears same size



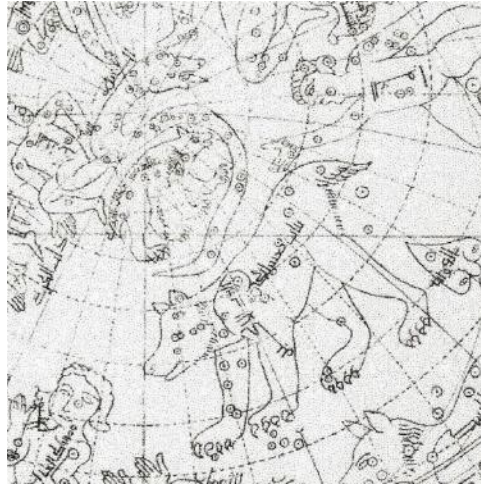
detail from planisphere  
bear near head slightly smaller

# Eastern Globes

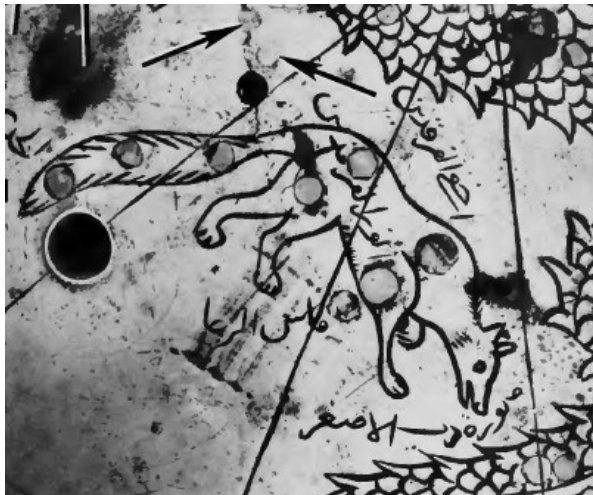
# Ursa minor



Florence, Mus delle Scienze, no. 2712  
dated 1025 AD **in last curve of Draco's tail**



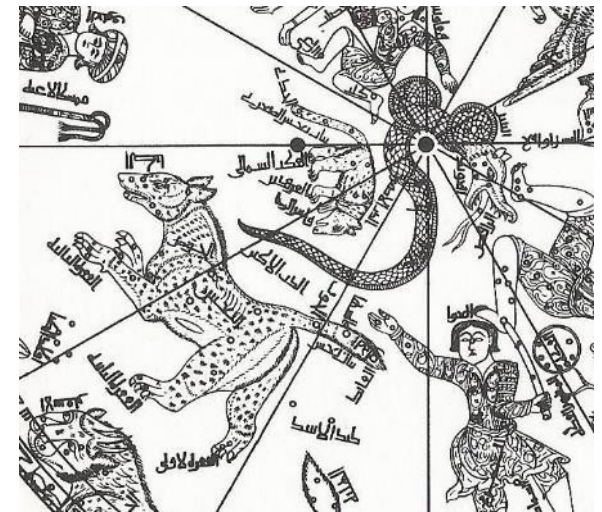
Paris globe GA 325



Smithsonian Mus, no 72-3085  
**n.b. – above Draco's tail, fox-like**



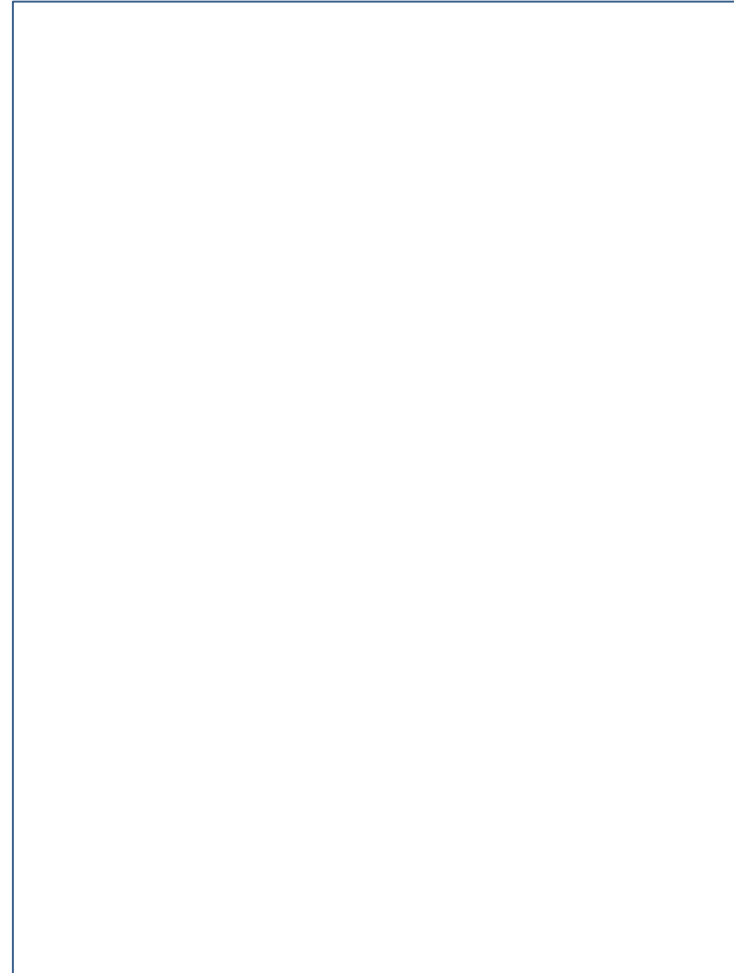
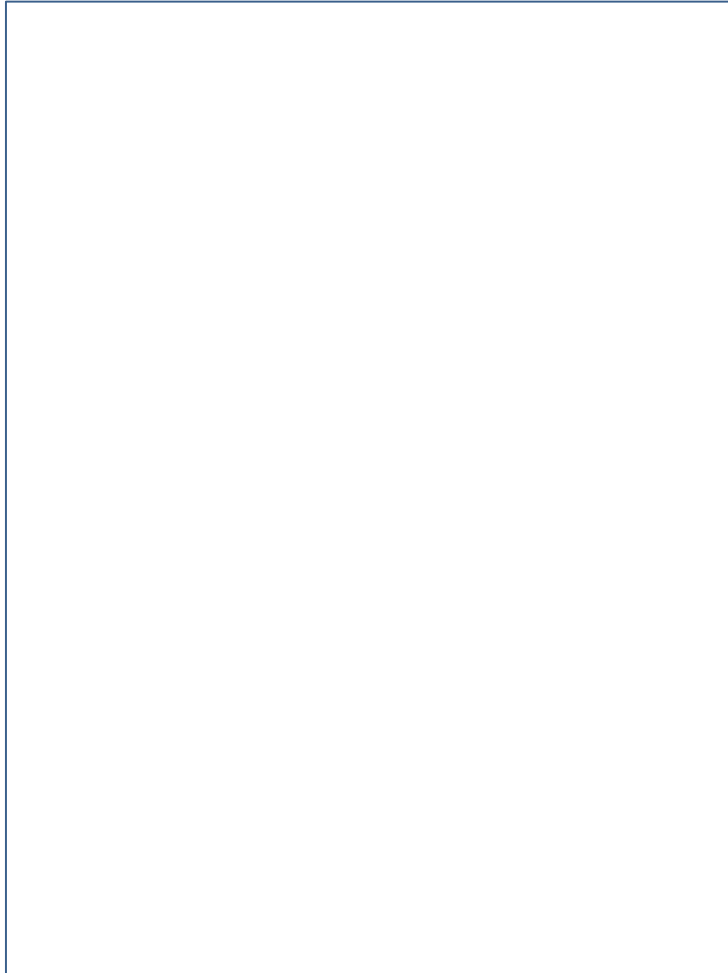
cf. Savage-Smith, *Islamicate Globes*, fig. 49



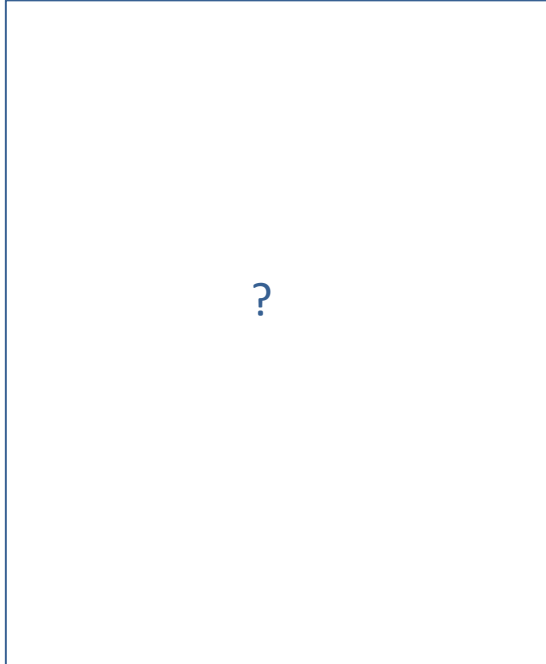
BM – Malcolm globe  
**n.b. – long tail**



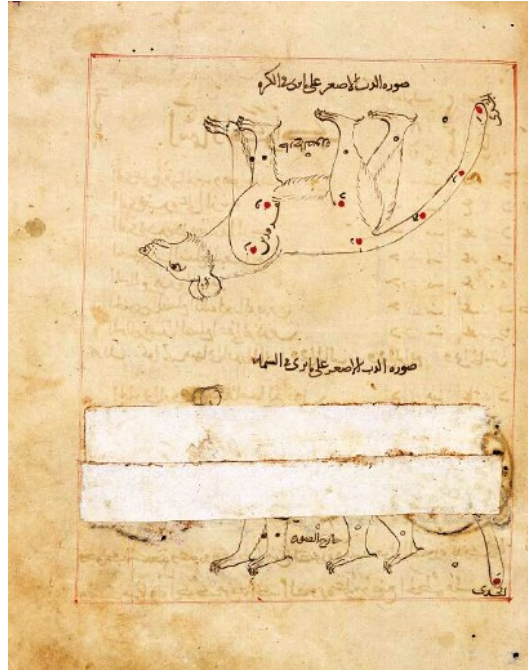
Doha, Mus of Islamic Art  
 Ms 2. 1998. SO (= Sotheby's 1998, lot 34)  
 Dated April 1125 AD; Baghdād  
 n.b. – long tail, feet cut-off (?)



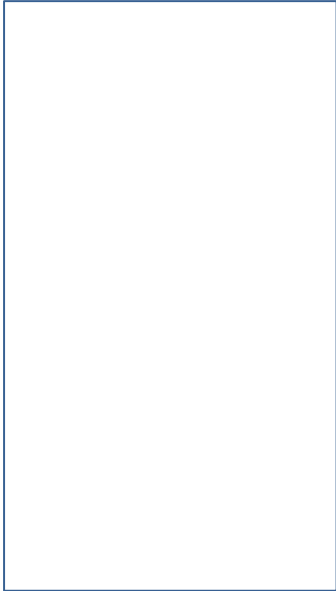
Istanbul, Süleymaniye Libr  
Ms Fatih Kütüphanesi 3422  
1125/26 AD; Mārdin



Istanbul, Topkapī Sarayī  
Ahmet II 3493  
1130-31 AD, Mayyafariqin, SE Turkey



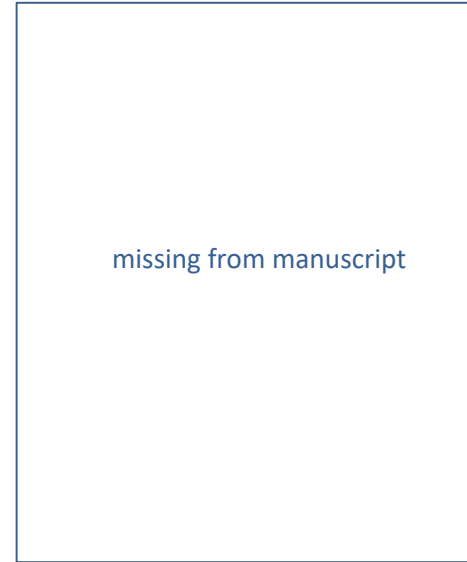
Oxford, Bodleian Libr  
Huntington Ms 212  
1170/71 AD; Mosul  
n.b. – long tail, long snout, walking



Oxford, Bodleian Libr  
 Ms Marsh 144  
 1009-1010 AD; Shiraz (?), Iran  
 n.b. – head dipped, long tail

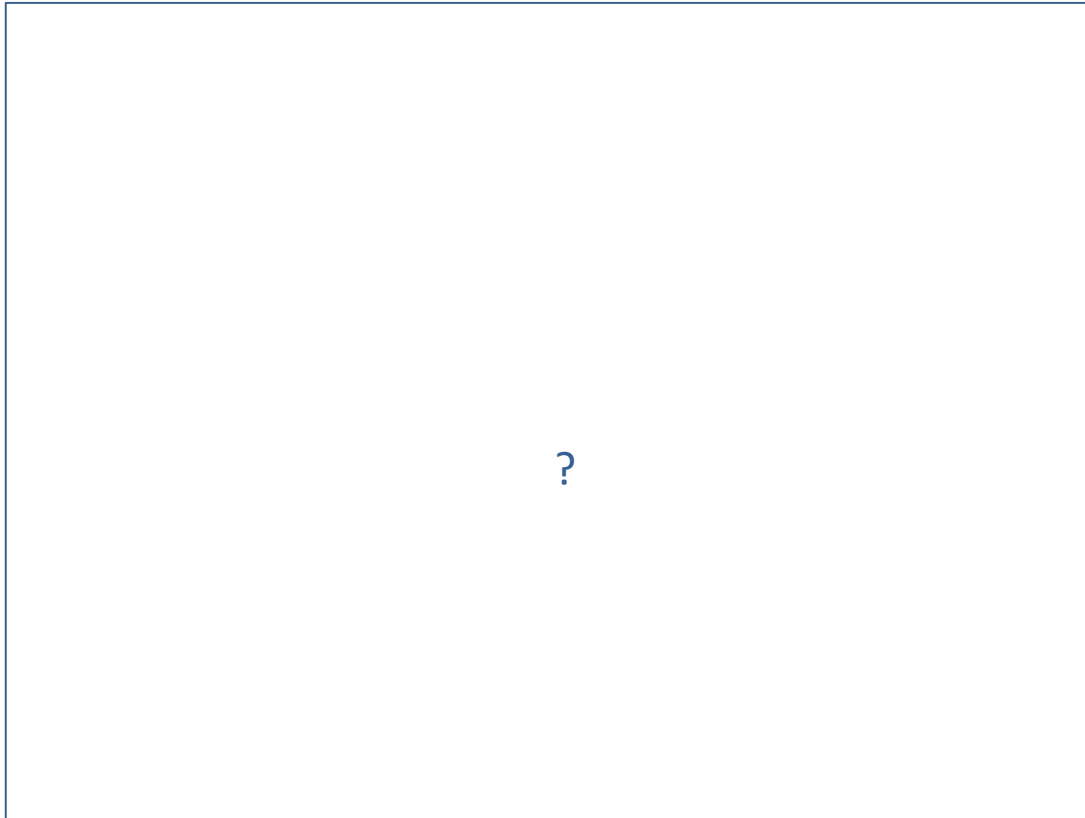
Berlin, Staatsbibl.  
 Ms qu or 704  
 c. 1203





Vatican, BAV  
Ross 1033  
1224 AD, Ceuta (?) N Africa  
n.b. – long tail, round ears

Berlin, Staatsbibl.  
Landberg 71  
Aug/Sept 1233; Mosul  
n.b. – long tail, collar, raised forefoot



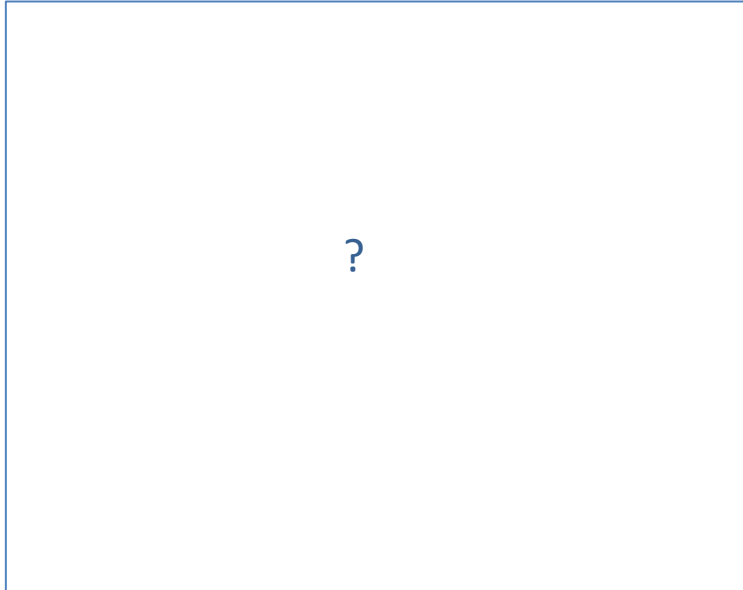
Istanbul, Suleymanie Libr  
Ayasofia 2595  
1249-50 AD; Alamut (?) Iran



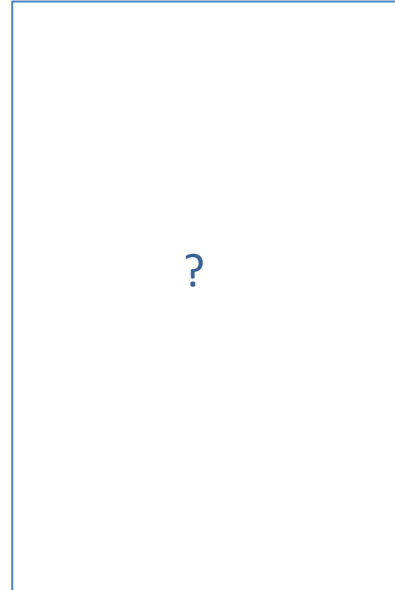
Paris BN  
Arabe 2488  
mid-13<sup>th</sup> C, Ceuta (?) N Africa  
n.b. – long tail



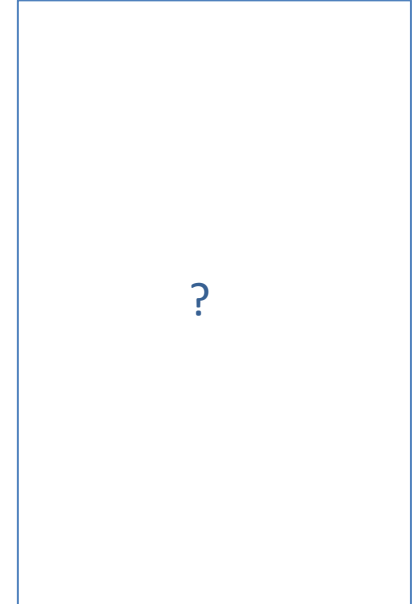
Paris BN  
Arabe 2489  
1266-67 AD; Syria?  
n.b. – long tail



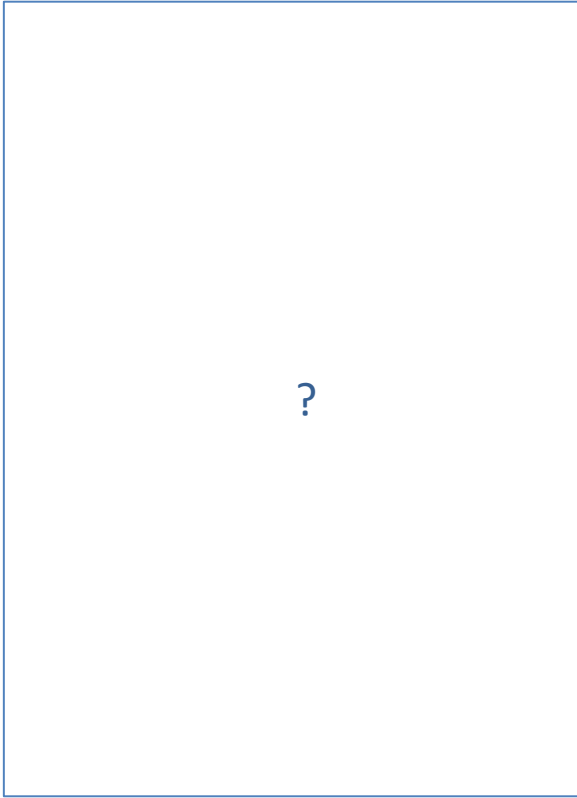
London BL  
Or 5323  
1260-80; Maragha (?), NW Iran



Cairo, National Lib  
Ms Dar al-Kutub miqāt 390  
1300 AD



Oxford, Bodleian Lib  
Pococke 257  
1303/04; Aleppo

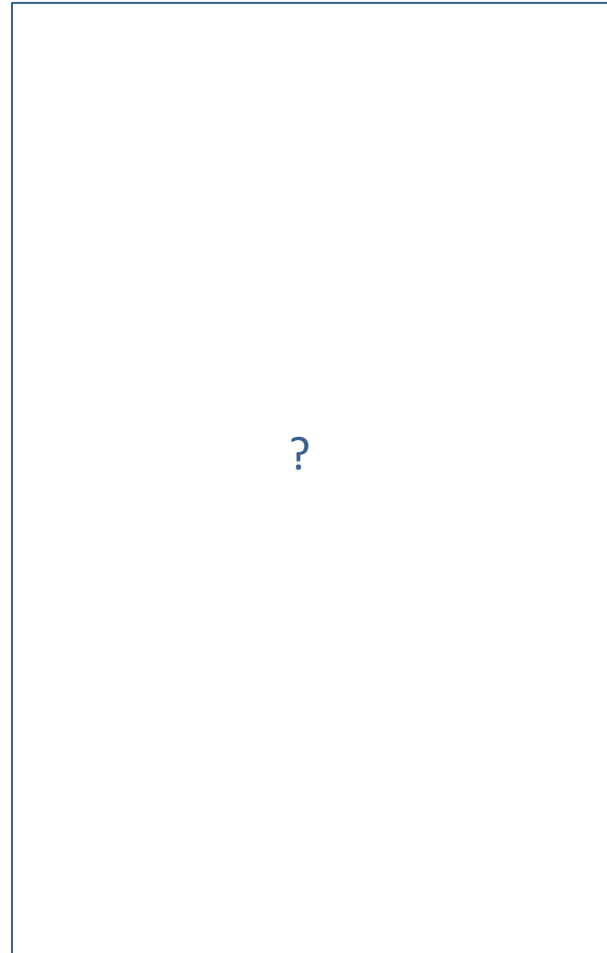


Escorial  
Ms 915  
20 March 1364 AD

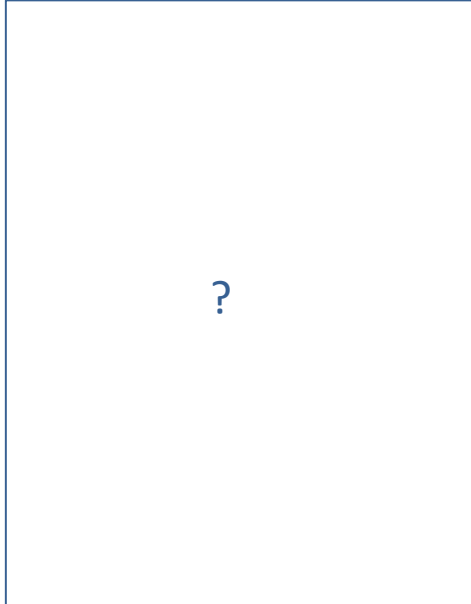
NY, Metropolitan Mus  
Ms Rogers Fund 1913  
c. 1400, Samarkand  
n.b. -- long tail, fox-like



Paris BN  
Ms arabe 5036  
c. 1430-40, Samarkand  
n.b. – long tail, fox-like



Bologna, Bibl. Univ  
Ms 2953  
8 Oct 1500 AD

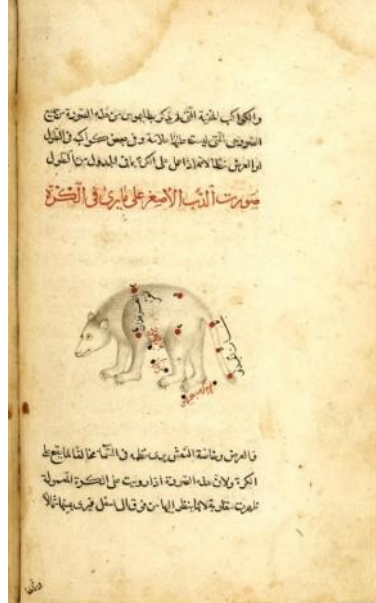


Dublin, Chester Beatty Libr  
Ms Ar 4119  
1504/05 AD



Paris BN  
Arabe 2490  
1516/17 AD  
n.b. – shortish tail





Paris BN  
Arabe 2491  
1770 AD  
n.b. – long tail, hunched

Paris BN  
Arabe 2492  
18th C  
n.b. – long tail, like a wolverine

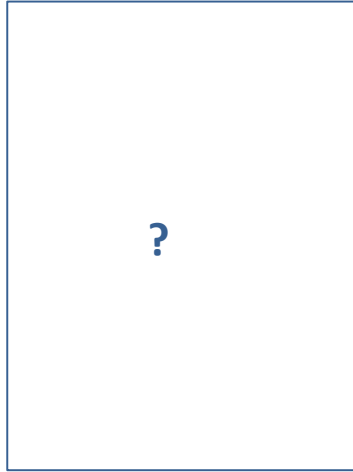


non-Latin Eastern mss (al-Sufi, *Kitāb suwar al-kawākib al-tābita*)

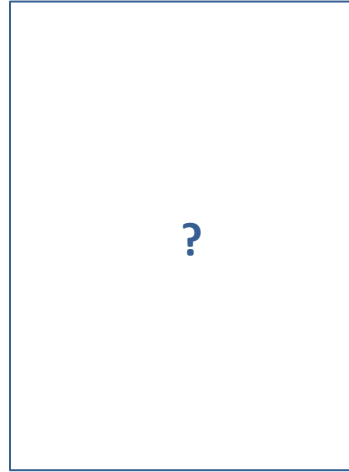
Ursa minor



Dublin, Chester Beatty Libr  
Ms Ar 4222  
16th C; Iran



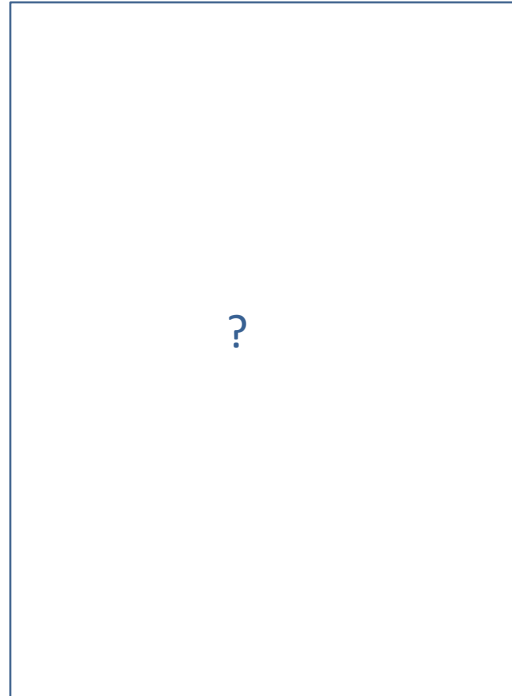
London BL  
Add ms 7488  
16th C



Istanbul, Perter Pasa Libr  
Ms 375  
16th C



Copenhagen, Kong. Bibl.  
Ms arabe 83  
25 May 1602 AD; Medina; copied from copy dated 1013/14  
AD believed to be al-Sufi's own copy



St Petersburg, Inst Or Studs  
Ms n.s. 191  
16th C; Istanbul ?  
cf Schellerup

Princeton, Univ Libr  
Ms Garrett 2259 Yehuda  
al-Sufi, dated 3 Jan 1607

Paris BN  
Arabe 6528  
India, 1643-44  
**n.b. – shortish tail, nose and feet cut-off**

non-Latin Eastern mss – al-Sufi translations, etc.

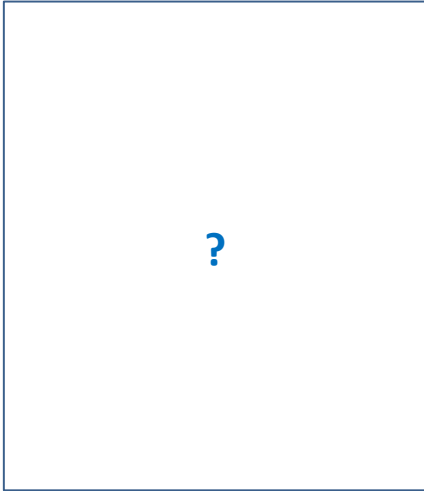
Ursa minor



al-Sufi, at-Tusi transl???



Tehran, Riza 'Abbasi Libr  
Ms M. 570  
Ibn-al-Sufi (son)  
1159-60 AD



St Petersburg, Ms E (?)  
Qazwini



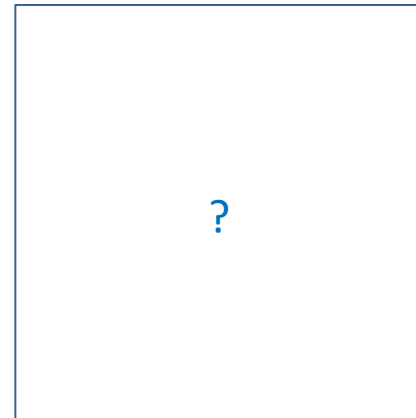
Baltimore, Walters Art Gall  
Ms W 359  
Qazwini – short tail, bear-like



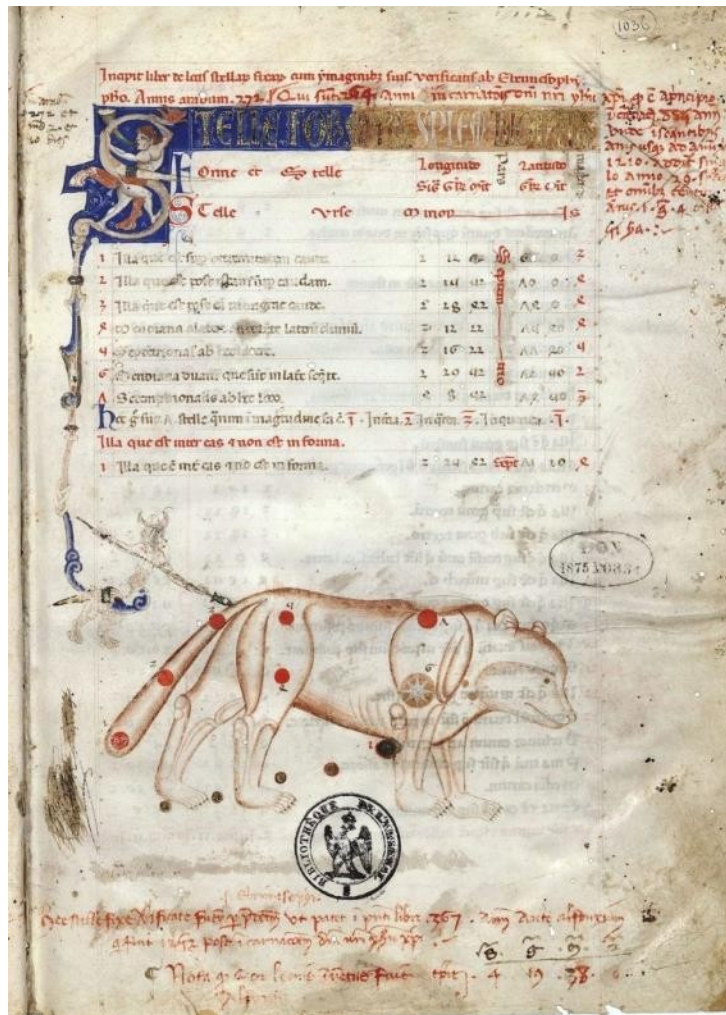
Paris BN  
Arabe 2178  
1762-63 AD – longer tail, rat-like

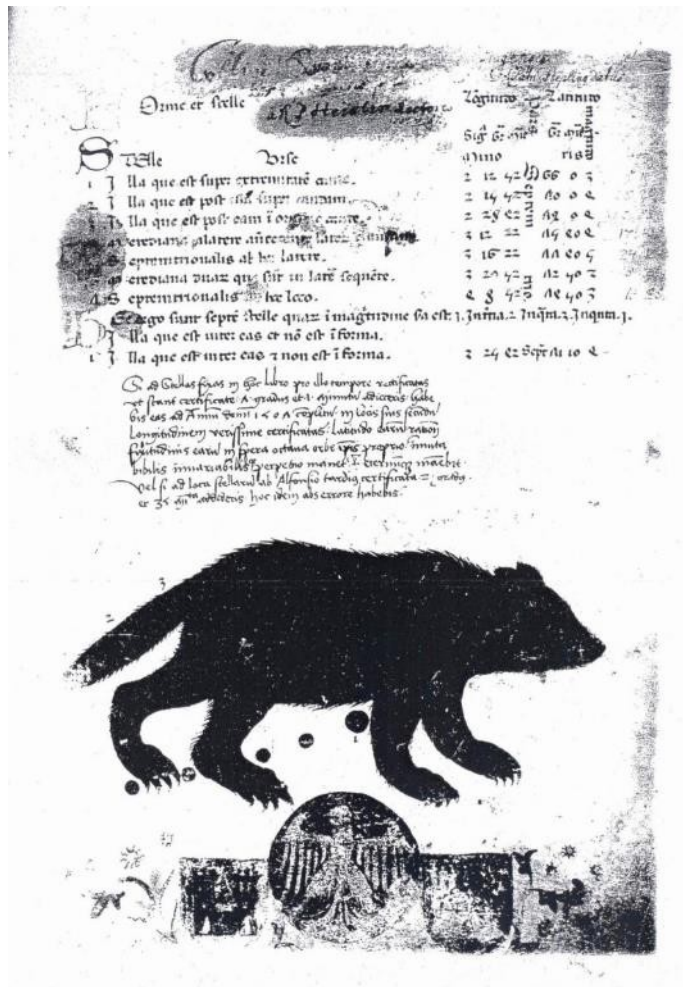


Washington DC, Freer  
Ms 1954 -52 (ex-Sarre)  
Qazwini  
n.b. – shortish tail, bear-like



Location unknown  
Mughal, 17<sup>th</sup> c  
Qazwini





Prague, Strahov  
DA. II. 33  
same



Berlin, Staatsbibl, KK  
Ms 78 D 12  
same

stelle foimarum	Sep	tem	tas	na	lum
Omne	et	stelle	longitudo	latitudo	
stelle	verse	minoris	lig. g. aji	g. aji	

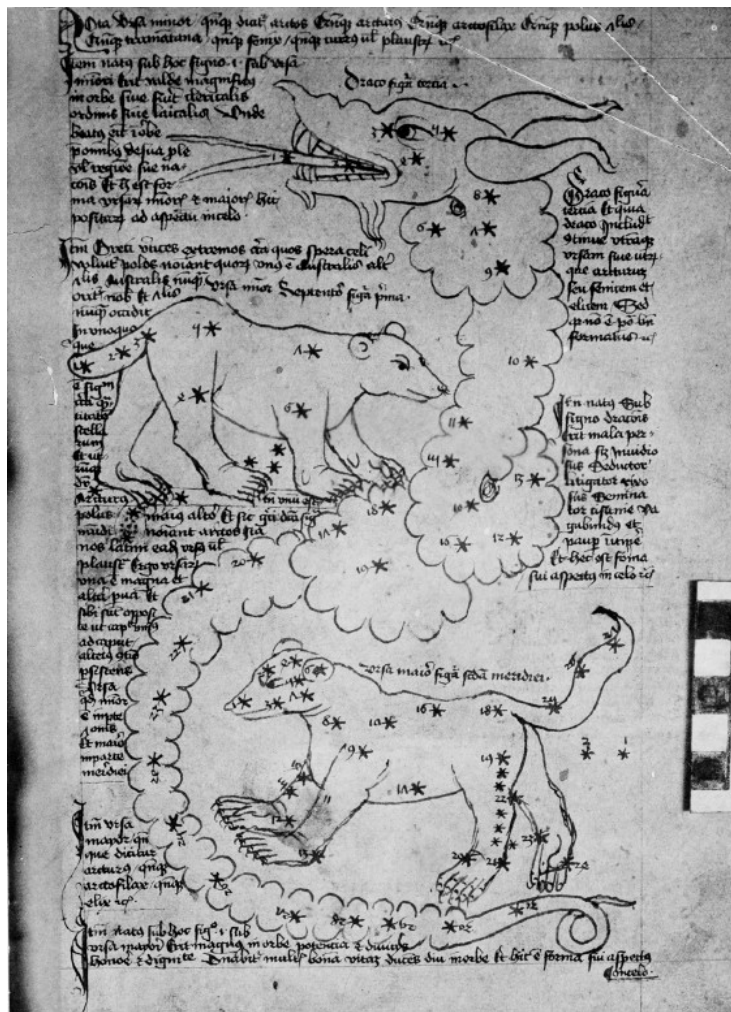
1 Illa que est sup. circumstantem caude  
 2 Illa que est istam sup. caudam  
 3 Illa que est post eam in origine caude  
 4 Meridiana a latere antecedente laterum duorum  
 5 Septentrionalis ab hoc latere  
 6 Meridiana duarum que sunt in latere sequente  
 7 Septentrionalis ab hoc latere  
 et ergo sunt septem stelle quarum in magnitudine secundi est  
 vni. in tertia due. in quarta tres. in quinta vna.

*Illa que est inter eas et non est in forma*  
*Illa que est inter eas et non est in forma*

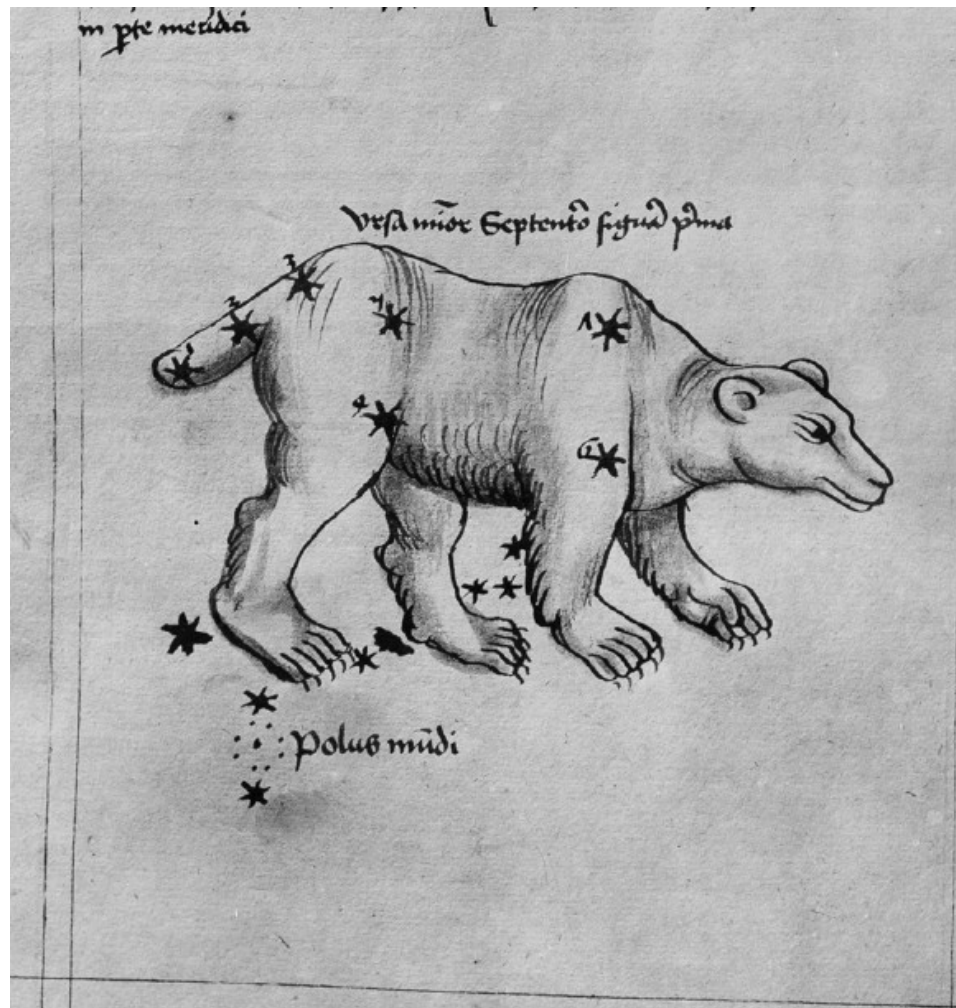
Munich, Staatsbibl  
 Clm 826  
 same



Gotha, Forshungsbibl  
 Membr II 141  
 same

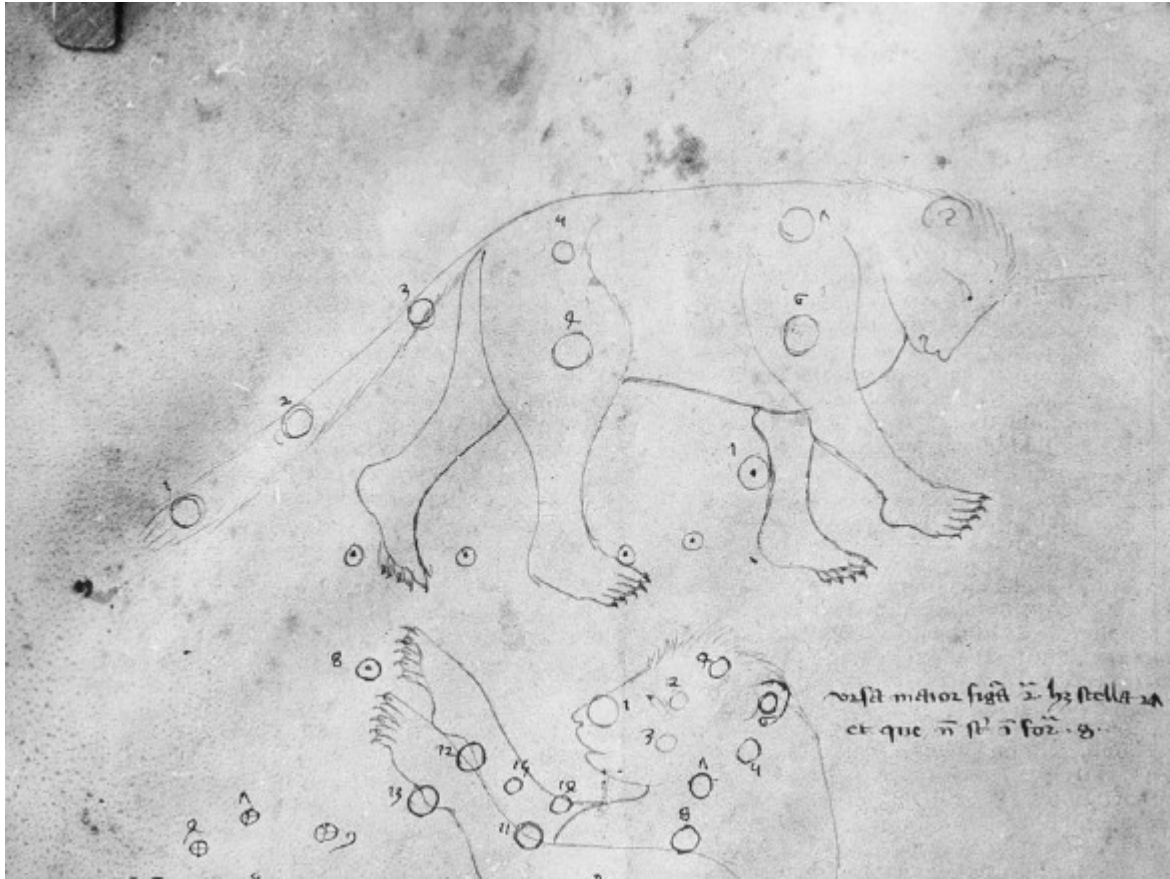


Catania, Bibl Univ  
Ms Univ Ar, 387  
n.b. – only as draco inter arctos, shorter tail



Vienna, ONB  
Cod 5318  
similar, but on its own

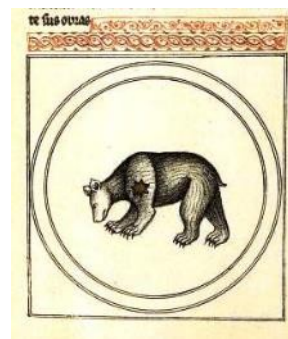




Bernkastel-Kues, Nicolaus hosp.

Ms 207

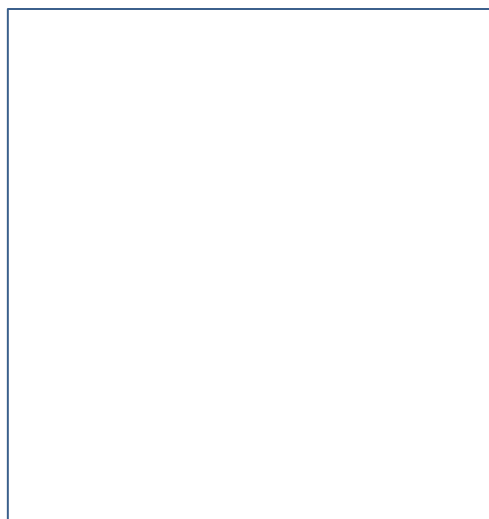
n.b. – long tail, walking to right



El Escorial  
Ms h 115

(no text for this image)

n.b. – no appreciable pictorial difference between bears, selection based on text



Vatican BAV  
Reg lat 1283a



Vatican BAV  
Vat lat 8174  
Orsa minore ... in latino si dice e ursa minor e  
in arabico alDub alazgar



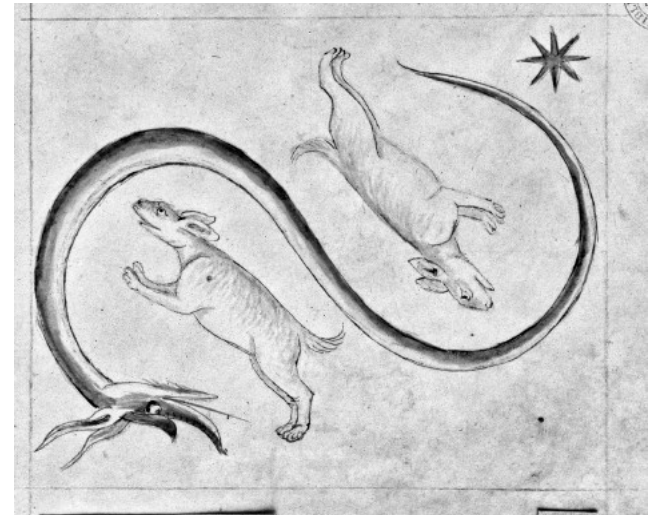
Los Angeles, Getty Mus  
Ms Ludwig XII, 7  
figura constellationis ursa minoris qui vocatur in  
arabico alDub alazgar



Oxford, Bodleian Libr  
Rawl C 117  
n.b. – shorter tail



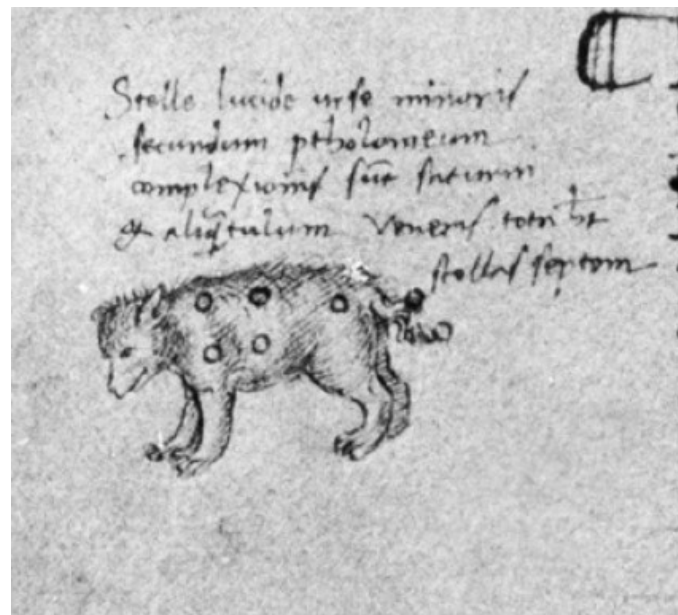
Vatican, BAV  
Urb lat 1399



Oxford, Bodleian  
Can class misc 554  
n.b. – only as draco inter arctos, same size



Bergamo, Bibl A Mai  
Ms  $\Sigma$  II 2  
n.b. – faces to left, long hairy tail



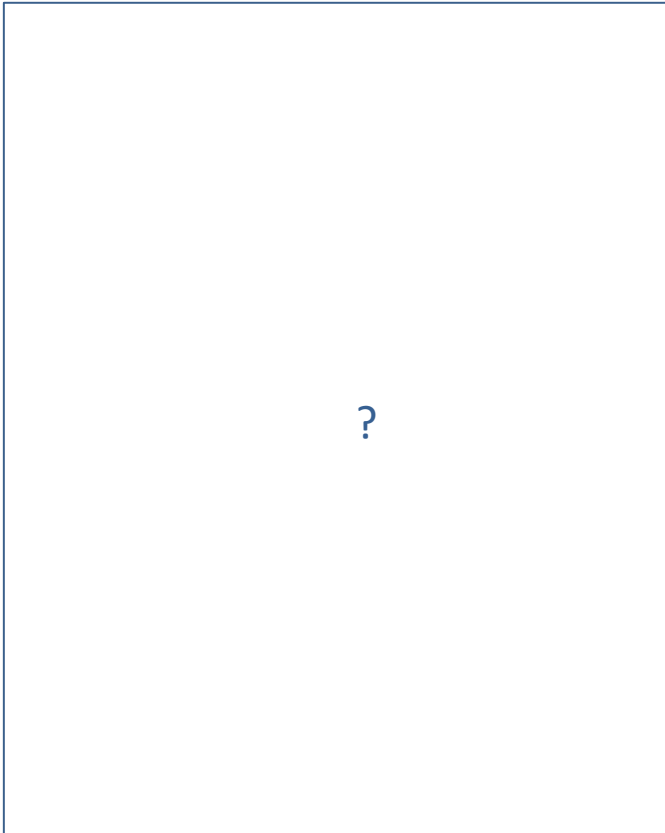
Vatican, BAV  
Vat lat 3099  
same



Brussels, Bib Roy  
 Ms 10117-26  
 n.b. – walks to left  
 Ursa minor alio nomine dicitur cynos



Vatican BAV  
 Pal lat 1368  
 n.b. -- short tail, walks to left



Vatican BAV  
Pal lat 1377



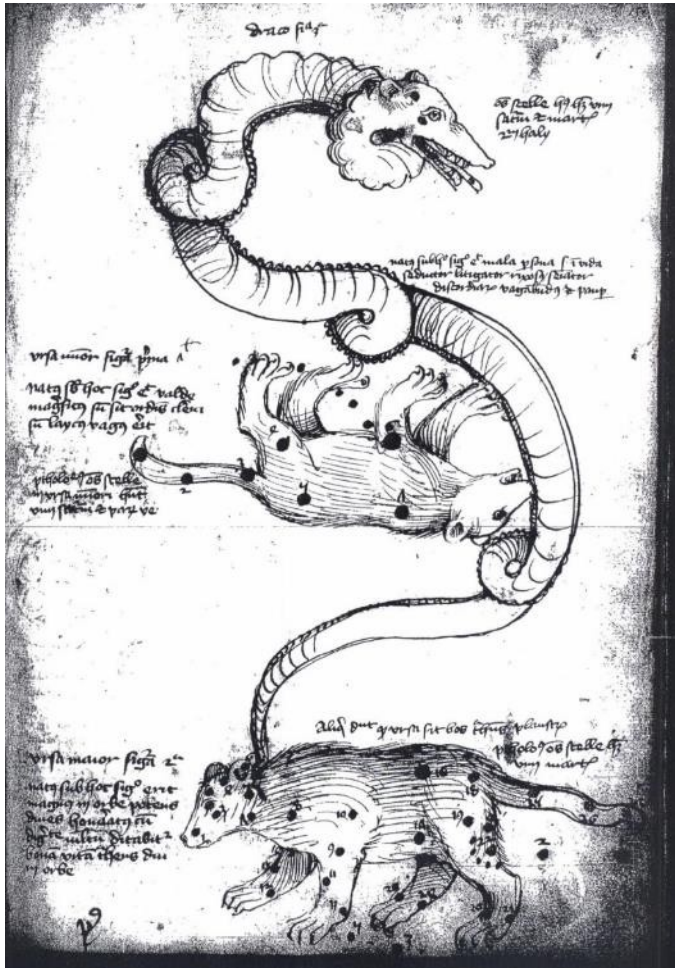
Torun  
Ms 35

n.b. -- only as draco inter arctos, smaller one at Draco's tail



?

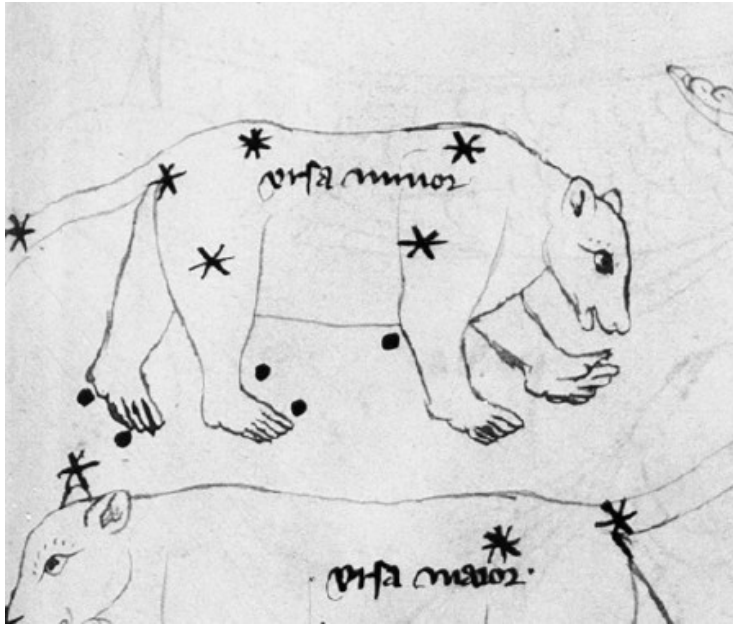
Augsburg, Univ-bibl.  
Cod II 1.2o 110



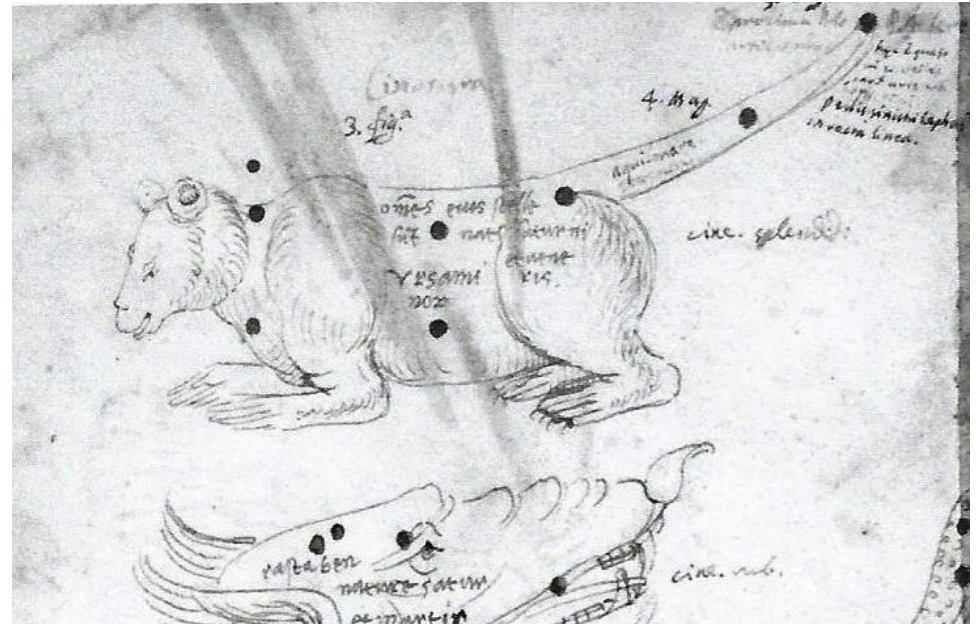
Cambridge MA  
Houghton, Typ 43

n.b. — only as draco inter arctos, UMi in second  
curve of Draco

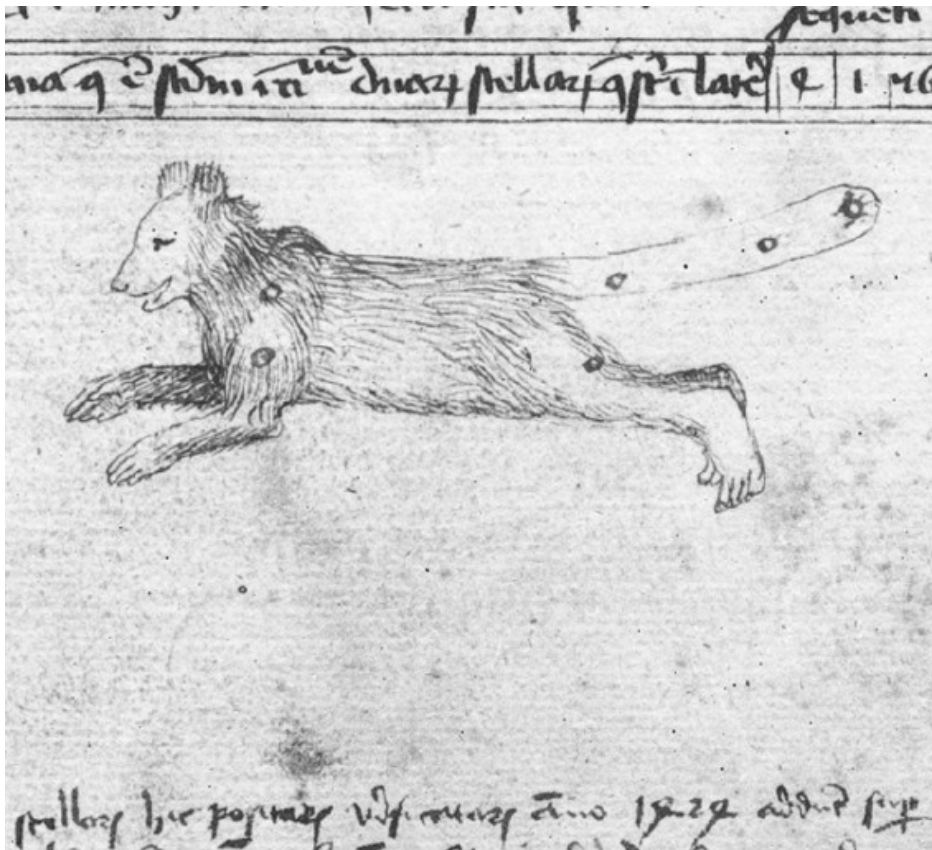




Basle, Univ-Bib  
Ms F. II. 33  
n.b. – longer tail



Florence, BNC,  
Ms Angeli 1148  
n.b. – crouching to left, long tail



Vienna ONB  
Vienna 5415  
n.b. – leaps to left, long tail



Vienna ONB 5415  
southern hemisphere  
same, but with short tail



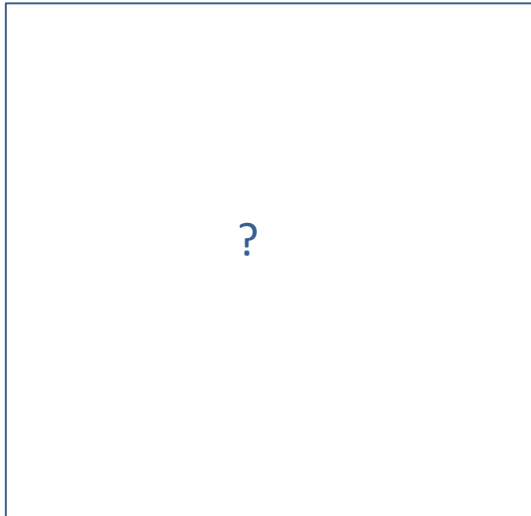
Philadelphia, U Penn  
 Ms LJS 57  
 n.b. – stands to right, short tail



Vienna, ONB  
 Hebrew 132  
 same



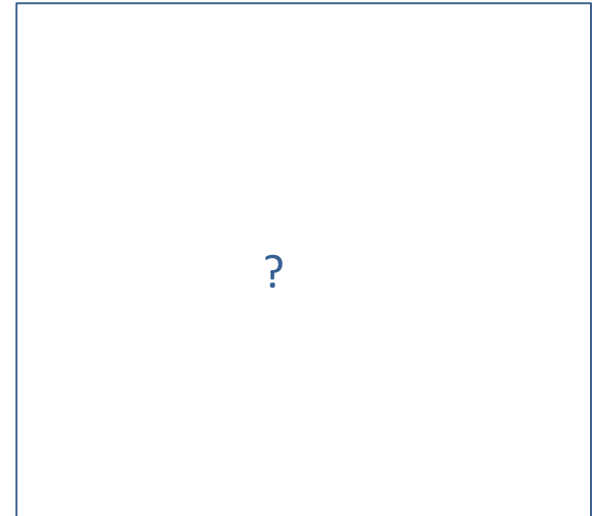
northern hemisphere



Padua, Univ . Bibl.  
Cod 896



Vatican BAV  
Urb lat 355  
n.b. – walking to left



Vatican BAV  
Vat lat 1650



Bernkastel-Kues  
St Nicholas-Hospital  
Ms 212 (hemispheres)

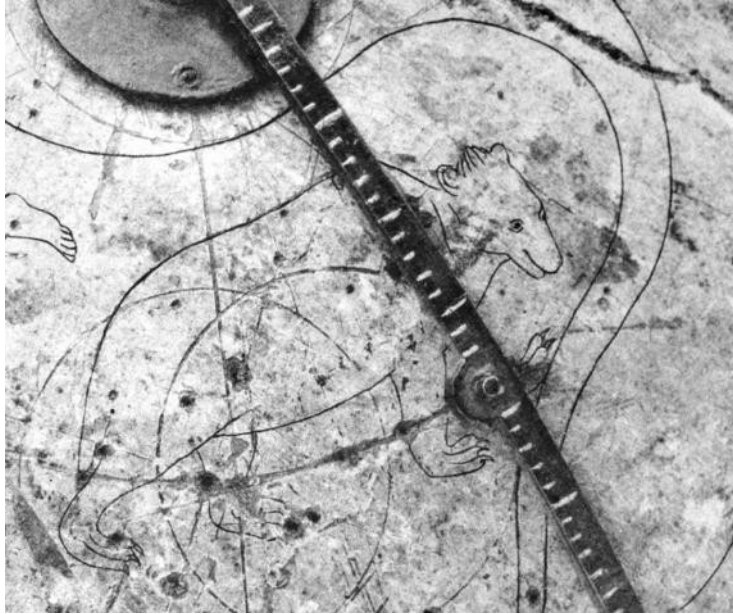
n.b. – smaller one in second curve of Draco



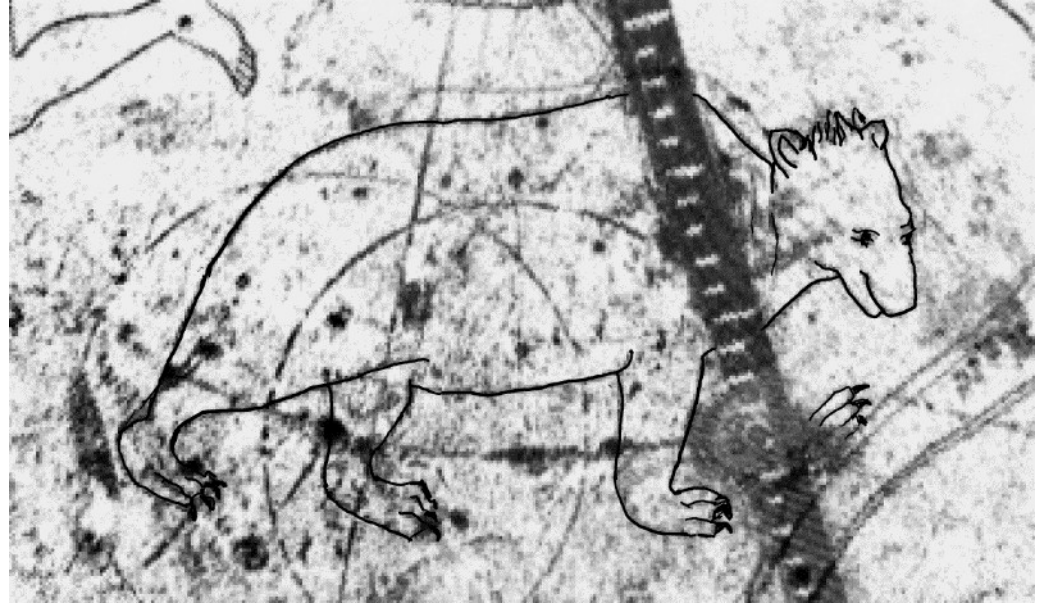
Darmstadt, Univ- and Landesbibl.  
Ms 1020  
northern hemisphere

n.b. – same size, Draco reversed





Cusanus globe



reconstruction © P. Hadrava



Parma, Battistero  
n.b. – hunched like De signis mss and RAL from Cologne



London, BL  
Burney ms 275  
Marginalia of bear and ram using a quadrant



Berlin, Islamisches Museum  
Sassanian plate from Iran  
7th C